



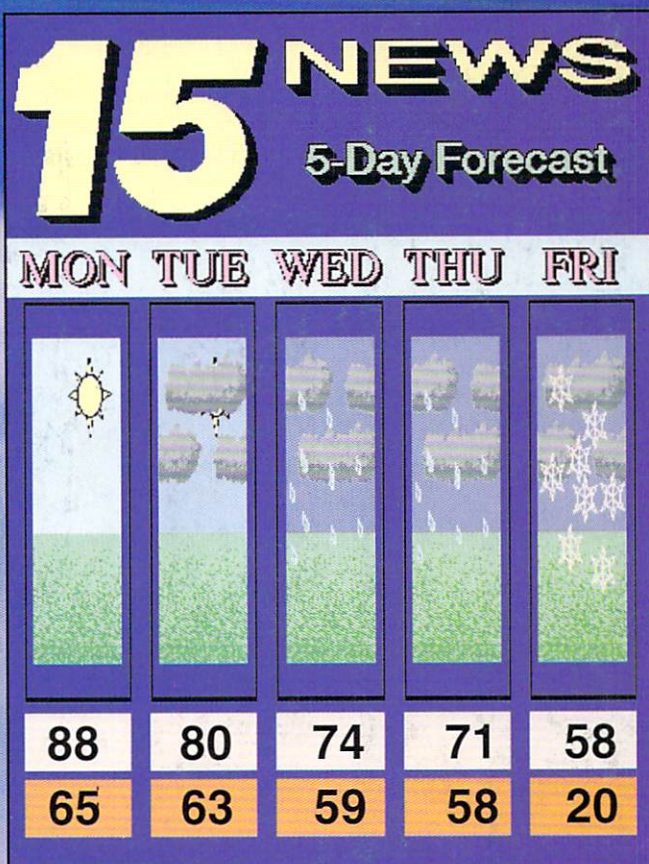
Amazing *For The Commodore* AMIGA

COMPUTING™
Your Original AMIGA® Monthly Resource

Volume 9 No. 11 November 1994
US \$3.95 Canada \$4.95

Animated Weather

- Create an Animated Five-Day Weather Forecast with DeluxePaint IV
- Weathering the Situation
- Adorage and ClariSSA
- TrapFax
- On The Ball 1.24
- Distant Suns v5.0
- Pixel3D-Pro Version 2
- Front Ending C
- and much more!



**NEW
COLUMN**

Beginning Assembly



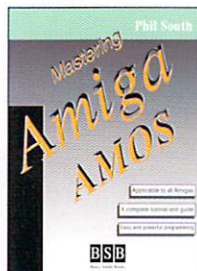
The Essential Selection



All books are written and produced in Great Britain.



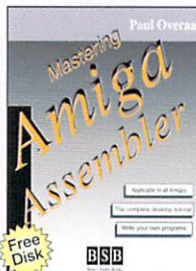
Bruce Smith Books



AMOS is one of the most exciting and accessible programming environments on the Amiga. Phil South fully explains the fundamentals and the skillful shortcuts to great programs, with lots of example code to experiment with and develop your own programs with. Covers all versions of Amos including AMOS, Easy AMOS and AMOS Professional.

Mastering Amiga Amos

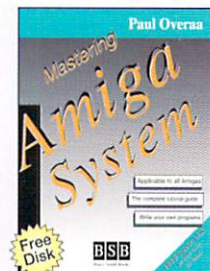
Phil South, 320 pages, \$26.00, ISBN: 1-873308-12-4



The Amiga's operating system has proved a major obstacle to assembly language programmers, but this book is guaranteed to get the serious Amiga owner into the world of 68000 assembly language programming. It assumes some experience of high-level languages such as BASIC. Skeleton programs are provided for the beginner to follow and develop.

Mastering Amiga Assembler

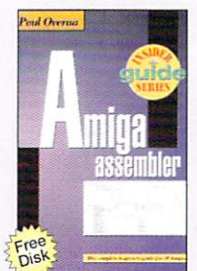
Paul Overaa, 416 pages, \$29.00, ISBN: 1-873308-11-6



If you want to take over your Amiga then you need to understand and program the Amiga System itself. This book is an introductory guide to just that. Assuming a base knowledge of C but explaining all new System concepts, it teaches you how to handle tasks and processes, work with libraries, incorporate IFF graphics and much, much more.

Mastering Amiga System

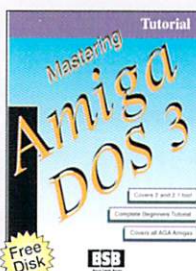
Paul Overaa, 400 pages \$29.00, ISBN: 1-873308-06-X



Want to learn Assembly language but don't know your *IntuiMessage* from your *Null terminated string*? Then the *Amiga Assembler Insider Guide* is for you! With easy-to-follow examples and instructions it explains and demystifies the jargon. Applicable to all Amigas, it comes with a free disk which includes the PD A68k assembler and programs from the book.

Amiga Assembler Insider Guide

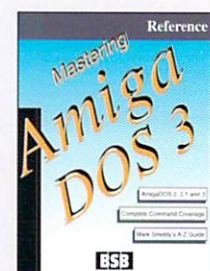
Paul Overaa, 256 pages, \$23.00, ISBN: 1-873308-27-2



Perhaps the most comprehensive introductory tutorial ever written about the Amiga's operating system in a massive 384 pages. If you want to learn about AmigaDOS 2, 2.1 or 3 then this is the book for you. It assumes you know nothing about the subject but - if you follow the step by step exercises - will turn you into an AmigaDOS expert.

Mastering AmigaDOS 3 - Tutorial

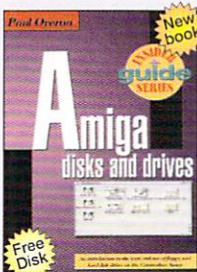
Smith & Smiddy, 384 pages, \$27.00, ISBN: 1-873308-20-5



This is the full reference guide to the AmigaDOS command set with complete coverage of over 140 AmigaDOS 2, 2.1 and 3 commands. Arranged alphabetically, it includes many worked examples with full command synopsis and templates. Contains details on the Mountlist, AmigaDOS Error Codes, AmigaGuide, the IFF, Commodities, and much more.

Mastering AmigaDOS3 - Reference

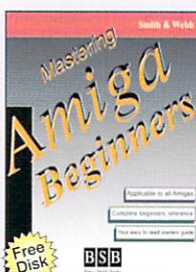
Smith & Smiddy, 368 pages, \$27.00, ISBN: 1-873308-08-6



This book teaches you to use and care for all types of disks and drives in order to minimise the risk of problems, get a better understanding of how they work and what to do if things go wrong. Topics include installing software, copying and moving files, encryption and security, disk repair and back-up, formatting and fast filing, floppy, Rad, Ram and CD's.

Amiga Disks and Drives

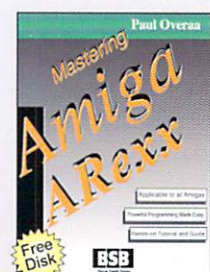
Paul Overaa, 256 pages, \$23.00, ISBN: 1-873308-34-5



Written with the sole aim of getting you through those soul-searching first months with your Amiga, it doesn't promise to make you an expert in any one topic but will give you the essential foundation stones from which you can progress. Step by step advice on specific subjects is balanced with general advice on all major subjects relevant to the Amiga.

Mastering Amiga Beginners

Smith & Webb, 320 pages, \$26.00, ISBN: 1-873308-17-5



The ARexx programming language is assured a bright future as part of Workbench 2 and 3. No harder to learn than BASIC the examples and listings supplied will teach you ARexx from scratch. A complete understanding of the application control advantages of this powerful language can be yours with ease. Also applicable to Workbench 1.2 and 1.3 users.

Mastering Amiga ARexx

Paul Overaa, 336 pages \$27.00, ISBN: 1-873308-13-2



Amazing Specification and Outstanding Value! That's the Amiga A1200 Beginners Pack! Now, for the very first time, you can get the complete beginners package in one bumper-value pack. Sure to be the best seller, the *Amiga A1200 Beginners Pack* includes the best-selling *Amiga A1200 Insider Guide*, *Amiga A1200 Next Steps Insider Guide* plus an exclusive 1-hour high-quality video tape on A1200 basics from Wall Street Video. This special value pack also includes four disks of essential PD and Shareware software with specially written book to help get you going. Programs include an easy-to-use database, a wordprocessor, a music editor, a file recovery/virus checker/disk compression package and clip-art selection.

Amiga A1200 Beginners Pack

\$49.00 ISBN: 1-873308-30-2

CREDIT CARD HOTLINE
(800) 345-3360

To order, send checks made payable to 'Pim Publications Inc'.
PO Box 2140, Fall River, MA 02722

Name.....
Address.....
City.....State.....Zip.....

All checks must be in U.S. funds drawn on a U.S. bank.

Orders sent RPS/UPS. (No PO Boxes please)

APO/FPO sent U.S. mail.

Please rush me the following books:

..... @ \$.....

..... @ \$.....

..... @ \$.....

Shipping & Handling (No. of books X \$3.00)..... = \$

Total

Or charge my Discover/Visa/Mastercard No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Signed..... Expiration Date:...../...../.....



ImageFX^{2.0}

"When Your Image Is On The Line"

ImageFX is the only image processing software package you will ever need for your Amiga...Period. This phenomenal program comes with a complete array of professional 24-bit paint tools and unsurpassed special effects. When you're up against a deadline, you don't have time to second guess. ImageFX gives you total control of the creative process with the fastest and easiest to use interface on the market.

When your image is on the line, you can't afford to make a mistake. Your image processor has to have all the tools an image processor should have. ImageFX lets you see your images as you work on them. Provides virtual memory for virtually unlimited image

sizes. Supports framegrabbers and scanners. Paints in full color, even emulating traditional media such as charcoals and watercolors. Supports dozens of image file formats. Other packages? They either can't do it, or you'll pay extra to get it. They stand still while ImageFX continues to grow and improve. Dramatically.

ImageFX 2.0 sets a new standard of quality for graphics manipulation on the Amiga. When your image is on the line, don't settle for less. Step up to the best. Step up to ImageFX 2.0.

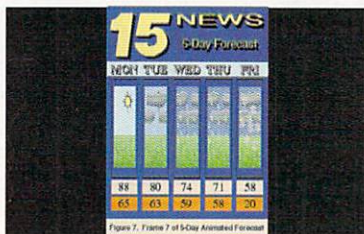
For a complete list of features in ImageFX 2.0 call the Nova Design support line at (804) 282-6528.



NOVA DESIGN, INC.

1910 Byrd Avenue, Suite 214 • Richmond, VA 23060
Customer Support: (804) 282-6528 • Business Line: (804) 282-5868 • Fax: (804) 282-3768

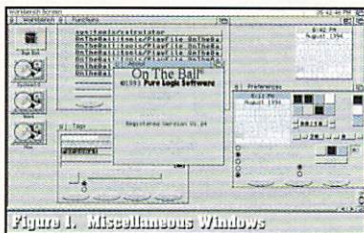
CONTENTS



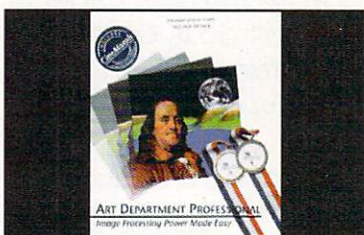
Animated weather forecast, p.14



Weathering the Situation, p.18



On the Ball 1.24, p.20



1994 Readers' Choice Awards, p.23



TrapFax, p.27

In This Issue

14 Create an Animated Five-Day Weather Forecast with DeluxePaint IV

by Randy Finch

Randy shares his experiences in producing an animated five-day weather forecast while working at an NBC affiliated local station.

18 Weathering the Situation

by R. Shamms Mortier

An interview with Tim Drawbridge, chief meteorologist for WVNY, who is attracting a lot of attention with his novel animations that he creates every night, all with his Amiga.

20 On The Ball 1.24

by Henning Vahlenkamp

A review of Pure Logic Software's *On The Ball* personal information manager.



23 1994 Readers' Choice Awards

The results are in and the winners are!

27 TrapFax

by Mark Rickan

A review of *TrapFax*, an integrated fax management utility from Austria's TrapDoor Development.

29 Two from Spectronics: Adorage and ClariSSA

by R. Shamms Mortier

A review of *Adorage*, a software only package which creates animated wipes and fades and *ClariSSA* an animation accelerator in software.



34 Pixel3D-Pro Version 2

by R. Shamms Mortier

A review of what Shamms considers a very significant upgrade to *Pixel3D-Pro*.

38 Distant Suns v5.0

by Rob Hays

This review covers many of the new features added in the newly released version of *Distant Suns*.

57 A Tale of Two DOS's

by Keith Cameron

Comparing AmigaDOS and MS-DOS.

63 Front Ending C

by Randy Finch

Create an interface for your C programs with an easy-to-use authoring tool.

Features

46 PD Update

by Henning Vahlenkamp

A close look at utilities to edit your Amiga's memory or clean your floppy drives, plus three games from shareware authors.

50 Online

by Rob Hays

This month's files include a ray tracing software package and accessories, as well as a security program to protect your disks from prying eyes.

1994 Readers' Choice Awards

Columns

9 New Products & Other Neat Stuff

Moving Textures 100, Making Music with Bertie Bunny, Really Real Texture/Images, International Flow Chart, Hypercache Professional v2.0, Magic Lantern v2.0, and more round out this month's New Products.

42 Inside ARexx

by Merrill Callaway

This month we look at arguably the most powerful single instruction in ARexx, the interpret instruction.

52 Bug Bytes

by John Steiner

Using a standard serial cable on the A1000; Interleave questions and intermittent errors on a SCSI System; Amiga Network information; A scary Backup story; Workbench 2.1 floppy errors; Mega Midget Racer and the MegaChip; Ami-Back and high density drives round out this month's Bug Bytes.



56 Beginning Assembly

by Bill Nee

The first in a series of articles covering the major machine language programming techniques for the Amiga.

59 Roomers

by The Bandito

Commodore UK & CEI in, Samsung out, and NewTek retains Amiga loyalty while selling to other platforms.

Departments

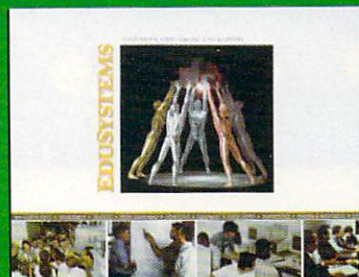
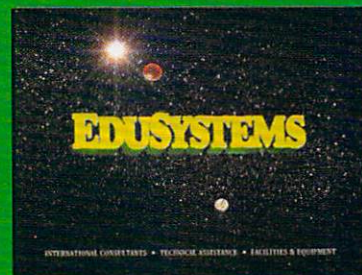
Editorial6

Feedback54

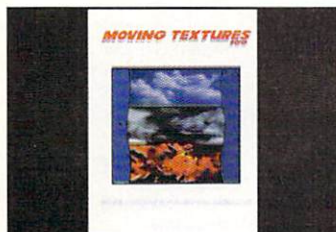
List of Advertisers72

Amiga Games.....74

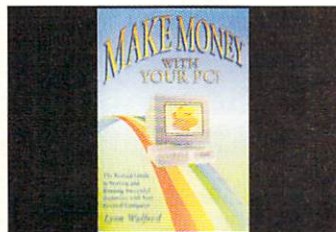
And furthermore...



Jim Uhler — sculptor, painter, photographer, writer, and once a player for the Chicago Bears, uses the Amiga in his advertising business.



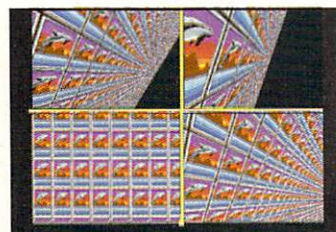
New Products , p.9



New Products , p.9



Inside ARexx, p.42



Two from Spectronics, p.29



Online, p.50

Coming Soon

AC's GUIDE to The Commodore AMIGA

Reserve your copy
today with an
AC SuperSub
For more
information Call
1-800-345-3360

MOVING?

Keep your Amazing Computing Issues coming!
Update your address toll-free in the United States or Canada by calling

1-800-345-3360.

Or send your old and new address to: AC, PIM Publications, Inc.
P.O. Box 2140
Fall River, MA 02722.

Amazing COMPUTING / AMIGA

Amazing Computing
For The Commodore AMIGA™

ADMINISTRATION

Publisher: Joyce Hicks
Assistant Publisher: Robert J. Hicks
Administrative Asst.: Donna Viveiros
Circulation Manager: Doris Gamble
Asst. Circulation: Traci Desmarais
Traffic Manager: Robert Gamble
Production Manager: Ernest P. Viveiros

EDITORIAL

Managing Editor: Don Hicks
Hardware Editor: Ernest P. Viveiros Sr.
Video Consultant: Oran Sands
Art Consultant: Perry Kivolowitz
Illustrator: Brian Fox
Contributing Editor: Merrill Callaway
Contributing Editor: Shamms Mortier

ADVERTISING

Coordinator: Donna Viveiros
Coordinator: Traci Desmarais

AMAZING AUTHORS

Keith Cameron Randy Finch
William Frawley Rob Hays
Jeff James John Steiner
Dan Weiss Henning Vahlenkamp
The Bandito

1-508-678-4200, 1-800-345-3360
FAX 1-508-675-6002

Amazing Computing For The Commodore Amiga™ (ISSN 1053-4547) is published monthly by PIM Publications, Inc., Currant Road, P.O. Box 2140, Fall River, MA 02722-2140, Phone 1-508-678-4200, 1-800-345-3360, and FAX 1-508-675-6002.

U.S. subscription rate is \$29.95 for one year. Subscriptions outside the U.S. are as follows: Canada & Mexico \$38.95 (U.S. funds) one year only; Foreign Surface \$49.97. All payments must be in U.S. funds on a U.S. bank. Due to erratic postal changes, all foreign rates are one-year only.

Second-Class Postage paid at Fall River, MA 02722 and additional mailing offices.

POSTMASTER: Send address changes to PIM Publications Inc., P.O. Box 2140, Fall River, MA 02722-2140. Printed in the U.S.A. Entire contents copyright© 1994 by PIM Publications, Inc. All rights reserved. No part of this publication may be reproduced without written permission from PIM Publications, Inc..

Additional First Class or Air Mail rates available upon request. PIM Publications, Inc. maintains the right to refuse any advertising.

PIM Publications Inc. is not obligated to return unsolicited materials. All requested returns must be received with a self-addressed stamped mailer.

Send article submissions in both manuscript and disk format with your name, address, telephone, and Social Security Number on each to the Associate Editor. Requests for Author's Guides should be directed to the address listed above.

AMIGA™ is a registered trademark of Commodore-Amiga, Inc., Commodore Business Machines, International

Amazing Computing is Distributed in the U.S. & Canada by International Periodical Distributors 674 Via de la Valle, Ste 204, Solana Beach, CA 92075

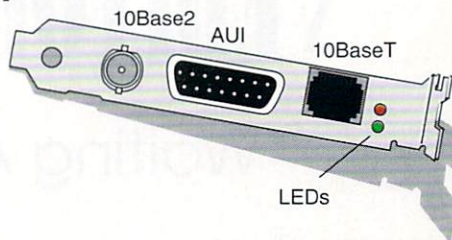
& Ingram Periodicals Inc. 1226 Hell Quaker Blvd., La Verne TN 37086

Printed in U.S.A.

ETHERNET PLUS

FEATURES INCLUDE:

- 3 Network Interfaces
10BaseT
Thick AUI
Cheapernet (10Base2)
- Diagnostic LEDs
- 10MB /second
- SANA II Compliant
- 1 Year Warranty



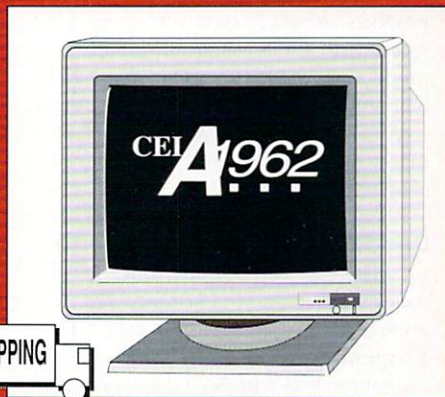
CEI A4066

Ethernet PLUS Network Board

**25%
Faster**

CEI A1962

The new high performance multisync monitor... *for all Amigas.*



THE BEST AMIGA MONITOR EVER! FEATURES:

- 15 to 38 Khz Horizontal Scan Rate
- .28 Dot Pitch
- 45 to 100 Hz Vertical Scan Rate
- International Power Supply Auto Sensing
- Compliant with Low Radiation Standards
- Position & Size Frontal Adjustments
- Swivel Base
- Displays All Amiga Modes Including "Super 72"
- Color Matches the AMIGA 4000

See them at your
CEI Dealer today...



For the location
of your nearest
CEI Dealer
call 305 266-2800

EDITORIAL CONTENT

Waiting Again

It is the November issue and we still have not been able to say who will be the winner of the Amiga technology. By all indications, there are only two strong bidders for the prize. David Pleasance personifies the UK Commodore management group that have placed a bid to purchase the Amiga and begin production again. Alex Amor of Creative Equipment International is the bidder who has pushed to purchase the property and begin production as a US company. We have interviewed both men in our past issues (please see the David Pleasance article in the September issue of AC as well as the Alex Amor interview in the October issue of AC), so I felt it was warranted to speak with each quickly and find out what they were doing and how much they could say about their activities.

David Pleasance of UK Commodore

I phoned David Pleasance at his offices and discovered a rare surprise. He was there. For the past several weeks, Mr. Pleasance has been competing in a non-stop race to secure this prize. With trips to and from the US and elsewhere, Mr. Pleasance has tallied a large amount of frequent flyer miles.

When I asked him about the impending purchase he replied, "It is still in the hands of the gods."

"As far as we are concerned," he continued, "we are in this thing to win it. We are not in it for a game. We are definitely in it to win it. Whatever bid it takes, we intend to pick up this business."

I went on to discuss some of the problems that the delay has caused in the market. I mentioned that the lack of any substantial news was doing more to erode confidence than the actual demise of Commodore had. He replied, "All this market is waiting for is for somebody to officially announce that the Amiga product line is a continuing product line and that it has a future."

There have been some concerns over the original statements made by the UK group concerning the US market. Would we be able to get machines? Would the US market see enough of the higher end

machines such as the Amiga 4000. Mr. Pleasance stated, "We will major on the Amiga 4000 for the first two to three months and the US market will certainly get well supplied on the product." Mr. Pleasance also restated his intention to hold a forum for Amiga developers and others both in the US and in Europe as soon as possible after the bid is finalized.

While he would not discuss his funding or his investors in the project (there has even been a wild rumor that China is financing the UK bid), he did say why he was being close lipped. "It would be completely inappropriate at this time to talk about where the finance is coming from."

This policy is being held by most bidders either now or in the past. The feeling is that if the competitor knows your source of capital, you are at a disadvantage. They could either try to poison the supply or create questions in the minds of the trustees as to how valid the source is.

I went on to ask about upcoming products. Would he be able to go on record with a statement concerning product announcements. He replied that without the company in his possession, he was blocked from making the decisions that would create the timetable and product line that we all need.

Deadlines—more live than dead

There was little doubt from his conversation, that Mr. Pleasance was more than disturbed by the delays. Time after time, everyone in the Amiga community has witnessed delays as each new suggested deadline (probably suggested by an anxious Amiga user) slides past our hopeful eyes.

The newest rumor that I heard from "a reliable source" was that the trustees had to place some document, even if it was nothing more than a progress report, before the Bahamas' Supreme court by October 15, 1994. The beauty of this rumor is that by the time you read this, the deadline will have passed, but from my viewpoint as I write this, the new deadline will occur by the end of this week.

Alex Amor and CEI

Later I called Alex Amor at Creative Equipment International. Although Mr. Amor has been on the same marathon run as Mr. Pleasance, I was also able to find him in the office.

In our discussion, Mr. Amor was just as positive as Mr. Pleasance had been about the CEI bid and the business, but he also was stymied by the delays. In an effort to get around the problem, CEI has placed a bid before the trustees which contains a cancellation date. This is designed to force the trustees to act on the bid within a certain time. Unfortunately, the same trustees were originally faced with a similar deadline from the UK bidders and they allowed the deadline to pass.

Good News?

Once again we are faced with the same problem that has tortured Amiga owners for such a long time. Inability of someone to make a decision.

For whatever reason, the Amiga user base remains stuck behind someone else's agenda. Before it was Commodore International officers, now it is the people they designated to complete the liquidation task.

While it is hard to be too demanding toward the liquidators, after all they are doing what they are being paid to do—to find the best price they can for the Amiga, they still remain as a block to the Amiga's revival.

However, there is some solace to be taken from these events. Whoever wins the technology, either the UK group or CEI, both parties are committed to making the Amiga everything it can be. If we had had that commitment from CBM International's management, we would not be discussing this today.

Sincerely,

Don Hicks
Managing Editor

\$19.95 buys you hundreds of megabytes of great software for your Amiga

Amiga Library Services and Fred Fish offer you the best compilation of freely redistributable software money can buy!

Introducing **FreshFish™**, **FrozenFish™**, and **GoldFish™** from Amiga Library Services (ALS). This unique CD-ROM series offers Amiga users hundreds of megabytes of the very latest in freely redistributable software.

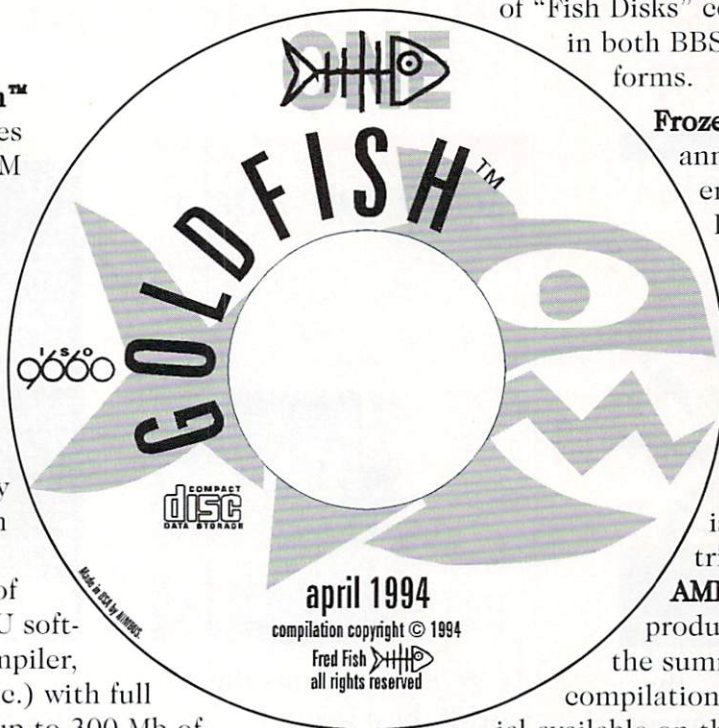
FreshFish CD's, published six times a year, are compilations of over 100 Mb of the newest material available in both BBS ready (archived) and ready-to-run (unarchived) form. Also included are over 200 Mb of the latest ready-to-run GNU software (EMACS, C/C++ compiler, text processing utilities, etc.) with full source code included and up to 300 Mb of other useful utilities, games, libraries, documentation and hardware/software reviews.

GoldFish, a two-disc CD-ROM set, contains the entire original 1,000 floppy-disk library created by ALS founder Fred Fish. This compilation of "Fish Disks" contains the entire library in both BBS ready and ready-to-run forms.

FrozenFish, offered on a bi-annual basis, contains the entire 1,000 floppy "Fish Disk" library in BBS ready (archived) form only. Also included are over 200 Mb of material from previously released FreshFish discs.

NEW RELEASE: ALS is happy to announce that it is now an authorized distributor of the "new"

AMINET™ CD's. These CD's, produced quarterly starting in the summer of 1994, are archived compilations of the most recent material available on the Internet. Each disc will contain thousands of programs, demos, sound files, games, images, programming tools, etc.



YES! I want to take advantage of this great offer! Please ship me the following:

☐ FreshFish ☐ FrozenFish ☐ GoldFish ☐ AMINET™ Gold

Buy any single CD for \$19.95 • Buy any 2 CD's for \$35.95

Buy any 3 CD's for \$49.95 • Buy all 4 CD's for \$59.95

☐ 1 year subscription to FreshFish (6 CD's) for \$89.95

☐ 1 year subscription to AMINET (4 CD's) for \$59.95

Shipping & Handling: \$3.95 for each shipment up to 4 CD's • \$12.95 for 1 year subscriptions

CALL TO ORDER

1.800.804.0833

FAX TO ORDER

1.602.917.0917

Payment: ☐ VISA ☐ MasterCard ☐ C.O.D. ☐ Check or Money Order (U.S.) ☐ FED-X 2nd-Day Delivery add \$12.95 (U.S. only)

Card Number: _____ Exp.: _____ Signature: _____

Name: _____ Address: _____

Address: _____

City: _____ State: _____ Zip Code: _____ Country: _____

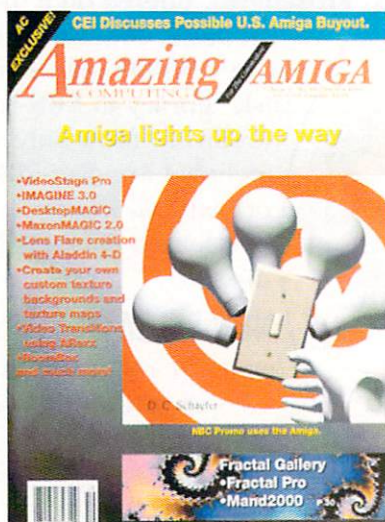
MAIL ORDERS TO: Amiga Library Services • 610 N. Alma School Road • Suite 18 • Chandler, AZ 85224-3687 • USA

Maintain your edge...

AC's *Guide* gives you the latest in Amiga products and availability; now subscribe to the magazines that will keep you in the know.

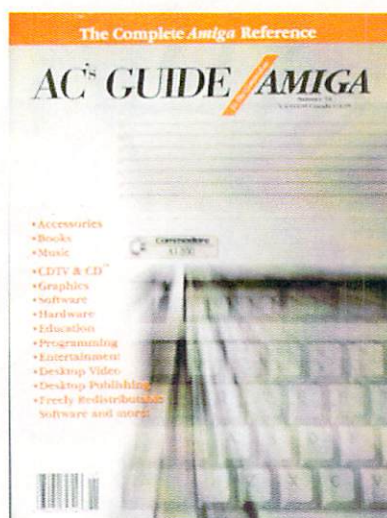
Subscribe to the best resource available for the AMIGA

Amazing Computing



Amazing Computing, the first Amiga monthly magazine, remains the first in new product announcements, unbiased reviews, and in-depth reporting. AC's unique columns like *Roomers* and *Bug Bytes*, step-by-step programming articles, and entertaining tutorials have made it the magazine of choice with devoted Amiga fans. With AC you remain on the cutting edge of Amiga product development.

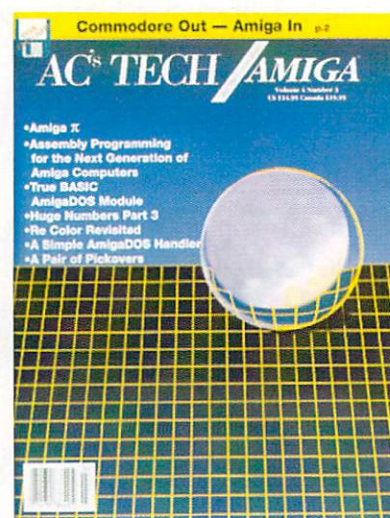
AC's Guide



AC's Guide remains the world's best resource for Amiga product information. A compilation of new product announcements from AC and exhaustive research, *AC's Guide* is a constantly updated reference to the ever changing Amiga market.

With an **AC SuperSub**, you will receive 12 issues of *Amazing Computing* and two issues of *AC's Guide* at a tremendous savings.

AC's TECH



AC's TECH was the first disk-based technical magazine for the Amiga. This quarterly collection of programs, techniques, and developer issues has been created for Amiga owners who want to do more with their Amigas. If you want to expand your Amiga knowledge beyond the ordinary, then *AC's TECH* is a must.

Complete your *Amazing Computing* library and FRS collection

Mail or FAX (508-675-6002) the enclosed order form or call toll-free in U.S. or Canada, 800-345-3360.
Foreign orders please call 508-678-4200

NEW PRODUCTS

and other neat stuff

The following are press releases and news announcements from Amiga vendors and others. While Amazing Computing maintains the right to edit these entries, the statements, etc. made in these reports are those of the vendors and not Amazing Computing magazine.

Moving Textures 100

Precision Computer Graphics is now publishing a software package for the Amiga entitled Moving Textures 100 (MSRP \$249.00). The package includes one CD

ROM and one videotape. Moving Textures 100 is made up of 22 image sequences that make it possible for computer animators to add natural phenomenon (such as clouds, fire, smoke, and water) to their animations. The sequences were captured using high quality equipment and the resulting frames were optimized to conserve memory. Each sequence contains 300, 600, or 900 ready to use IFF frames.

Any software that can handle image sequences can make use of Moving Textures 100. The product has been tested with Aladdin 4D, Imagine 3.0, Lightwave

3D 3.1, Real 3D, Art Department Professional (Using FRED), and ImageFX (using the IMP hook). The sequences can be used directly off the CD ROM by every program except Imagine 3.0. Instructions for using Moving Textures 100 with Imagine 3.0 are included in the package.

Precision Computer Graphics, 634 N Glenoaks Blvd. Suite 367, Burbank, CA 91502-6542, Tel: (818) 842-6542. Inquiry #210

Rocky Mountain Amiga Users Group Update

The Rocky Mountain Amiga Users can now be reached by mail at:

Rocky Mountain Amiga Users Group
P.O. Box 280403
Lakewood, CO 80228-0403

The Rocky Mountain Amiga Users meet the 4th Tuesday of each month at Wheat Ridge Middle School, 7101 West 38th Street, Wheat Ridge, CO 80033. For further information contact: Joe Obrin 303-420-0403

Rocky Mountain Amiga Users Group Video Toaster SIG

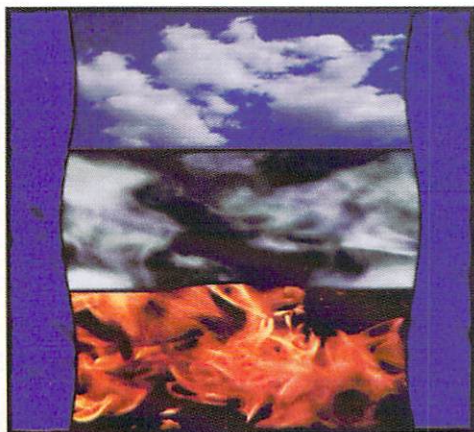
P.O. Box 280403
Lakewood, CO 80228-0403

The Toaster Sig meets the 2nd Monday of each month at the Virginia Village Library, 1500 South Dahlia Street, Denver, CO. For further information contact: Don James at the Computer Room, 303-696-8973.

Making Music with Bertie Bunny is Now Shipping!

WindShadow Software has introduced this title for young children to have fun while learning about music. With a suggested retail of \$34.95US, it fully employs the multimedia capabilities of the computer. It requires AmigaDOS 2.0 or greater and 1

MOVING TEXTURES 100



STOCK FOOTAGE FOR COMPUTER ANIMATORS

Moving Textures 100 is made up of 22 image sequences that make it possible for computer animators to add clouds, fire, smoke, and water and other natural phenomenon to their animations.

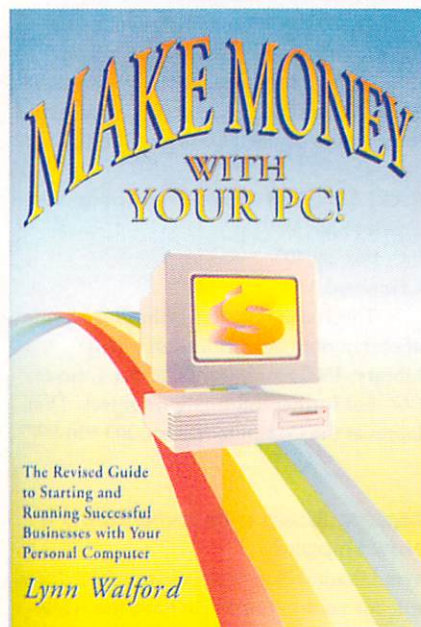
Megabyte of RAM. Even a 2 year old can "Bang Keys" to control Bertie. Bertie Bunny will automatically move from place to place on the display. Older children can use a mouse to quickly make selections. Musical skills covered include recognizing the sounds of various instruments as well as recognizing various musical tunes from one or more of 4 different parts. This title readily installs on a hard drive and supports NTSC and PAL as well as 6 languages.

WindShadow Software, 77 McIntyre Ct, Newmarket, Ont, Canada, L3Y 8B9, Tel/FAX: 905-836-4400. Inquiry #211

Make Money with Your PC! by Lynn Walford

Make Money with Your PC! The Revised Guide to Starting and Running Successful Businesses with Your Personal Computer by computer and business consultant Lynn Walford is a great source for anyone who needs the facts on how to choose, plan, market and manage a computer-based business. Though the press release states that it was written for people with a Mac or IBM/compatible, the information and tips can be applied to any platform. Find out if starting your own computer-based business is right for you.

Learn how to determine the right business for your skills, and how to evaluate and choose hardware and software. Get plenty of successful business ideas, learn how to market and manage



Although written primarily for a Mac and PC audience, *Making Money With Your PC* offers a variety of ideas and insights on starting a computer-based business.

your business, how to price, bill, and get paid for your services, how to set up your business, and where to go for help. Since starting your own business takes a lot of discipline, exercises have been created at the end of each chapter making it a breeze to develop business, marketing and management plans, and to set and accomplish goals. The book also contains examples and stories of how other computer-based business owners became successful and illustrations of common mistakes. Even if you already have a business this book will give you new ideas on increasing business and profits and avoid client problems. Publication date on this book was August 29, 1994 with a SRP of \$7.95.

Ten Speed Press, PO Box 7123, Berkeley, CA 94707, (510) 559-1600, FAX (510) 524-4588, Toll free order number (800) 841-2665. Inquiry #212

Really Real Texture/Images

The 3 disk set and bonus disk has a browser screen of 24 bit IFF, non-compressed, high resolution video images of the real thing, not C.G.I. Surface 3D objects with redwood bark, burl, moss, and more. Also graphic backgrounds from the old growth forest. Bonus disk includes real marble textures. Tutorials are also included. The Version 1.0 of the old growth forest has a suggested retail of \$36.95 and is currently available. System requirements include an Amiga 4000 with Toaster 3.0 or above, NTSC.

Second Sight Video Productions, 2045 Mt Diablo St., Suite 102, Concord, CA 94520, Tel: (510) 825-2309 or (800) 994-2308, FAX: (510) 825-2328. Inquiry #213

Cochlear Consciousness

Presented by Pierceptron, this new ear-training software for the Amiga retails for \$150 (including shipping). The Cochlear Consciousness software is actually a suite of six programs. Each program provides you with an environment to explore some aspect of musical sound, and a game or quiz to refine your perception and knowledge. The games analyze your personal performance, adjusting the strategy so you make swift progress. The six sets include: the chords program, the harmonics program, the beats program, the just program, the temper program, and the absolute program. The software implements a microtunable wave table synthesizer on the Amiga. It runs on any Amiga

with 500k of RAM or more (and probably even much less), and AmigaDOS 1.3 or later. Stereo speakers, or speakers with higher fidelity rather than speakers that are built into a video monitor are recommended. Headphones are also fine. The software is not copy-protected, and includes installation software for hard disk drives.

Pierceptron, 375 North Quince, Salt Lake City, UT 84103-1641, Tel or FAX: (801) 521-7215. Inquiry #214

International Flow Charter

International Flow Charter is packed with over 200+ ANSI standard shapes as well as shapes for boolean algebra diagrams and computer network diagrams. Other features include: 11 fonts; 4 line patterns; multiple flowchart editing; automatic text centering; portrait and landscape flowcharts in multiple densities; single page and multipage support; page and shape manipulation features; ILBM page export; ILBM clip art import/export; and total keyboard or mouse control. Requires 1MB chip ram and 1 disk drive minimum. Supports NTSC or PAL and 1.3, 2.0 or 3.0 ROM. MSRP is \$129.95 and is set for release on November 1, 1994.

Neather Realm Software, 2930 8th Street, Cuyahoga Falls, OH 44221, Tel: (216) 928-1738. Inquiry #215

Northwest Arkansas Amiga User Group—User Group Update

Please note that Peter Laws would like his name deleted as the contact name for the Northwest Arkansas Amiga User Group.

AmiTriX Development

AmiTriX Development has a new address and phone number as follows:

AmiTriX Development
5312 - 47 Street
Beaumont, Alberta Canada T4X 1H9
Phone: (403) 929-8459
FAX: (403) 929-5356

Hypercache Professional v2.0 Now Available

Silicon Prairie Software has announced the immediate availability of HyperCache Professional Version 2.0, the most recent release of their filesystem and device accelerator software for the Amiga series of personal computers. Picking up where the Amiga's operating system leaves off,

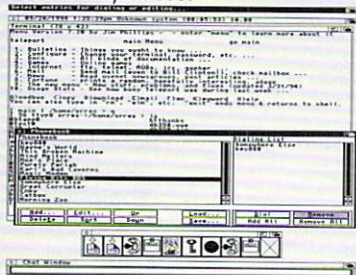
New! TERMITE®

Amiga Telecommunications enters the 90's!

Finally, everything you need to start cruising the Information Super Highway in one easy to use package.

Termite is so easy to use even a novice telecommunicator will feel at home, yet it has all of the power and high end features to satisfy the most seasoned modem warrior.

- Designed from the ground up at Oregon Research to take full advantage of Amiga WB 2.0 and higher!
- 100% Amiga Style Guide compliant!
- Supports communication speeds from 300 to 115,200 BPS!
- Flexible Phone Book with unique configurations for each number
- Support for Multiple Line BBSs
- Configurable review buffer with cut and paste editing
- Multi-tasking chat window to prepare text before sending it.
- Great for real-time conferences.
- Configurable Macros
- Font and Screen sensitive
- Configurable button bar! Assign any program function/macro to the button bar.
- Want your own icons? No problem, just assign your own IFF brush to the button!!
- Fully AREXX programmable for full automation!
- Automatic Call logging. Know where you were and how much you spent. **Much Much More...**



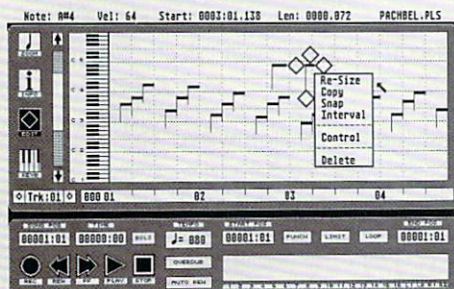
NAME THAT CRITTER CONTEST

Our new mascot's a cute little guy without a name. Send us your suggestions and register to win a 28,800 BPS modem and lots of other Oregon Research Products. No purchase is necessary to enter. Winners will be announced on SuperBowl Sunday '95.



SEQUENCER ONE+

Professional 32 track MIDI sequencer supporting 16 MIDI channels with simultaneous replay of up to 4 channels of sampled sound! High end features like tempo maps, juke box performance sequencer, more. Includes the highly acclaimed "Diamond Drag". "The easiest note editing system on the Planet!"



Finally Professional MIDI Sequencing for under \$100. Budget version (under \$40), a 1.5 hour MIDI video, Composition Assistant, and MIDI Interface also available.

EXPRESS YOURSELF

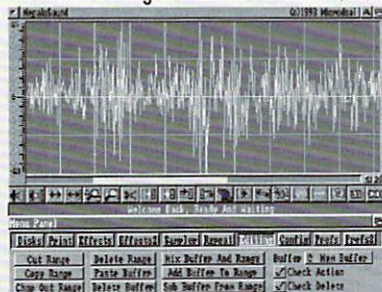
With Quality Products From

OREGON

RESEARCH

MEGALOSOUND

8 Bit Stereo Direct to Hard Disk Sampler with Advanced Editing and Effects for Under \$60!



Simply **AMAZING!**

CLARITY 16

16 Bit Stereo Sampler and Replay with built in MIDI interface, Advanced Editing, Effects, Sample and MIDI Sequencer for Under \$200!

Incredibly AMAZING!

New! GAMESMITH®

Development System

Tired of the limitations of those "BASIC" game development systems??

Ready for one that you can **REALLY** sink your teeth into?? Fast Parallax scrolling? No problem. Dual Playfields?? A piece of cake! Multiple viewports with multiple animated objects on independent paths with multiply defined background & object collision detection?? Child's play. Finally, Professional Game development is made easy with the GameSmith Development System from Oregon Research.

Over three years in development, the GameSmith Development system gives you the low level power to create the masterpiece of your dreams. The package has over 400 pages of documentation fully describing the system, utility functions, and over 130 library functions complete with a detailed tutorial and many examples.

- Complete animation system with double buffering
- Prioritized object display
- Custom Object/Object & Object /Background Collision Detection & Response
- Automatic placement and Animation of Multi-Sequenced animated objects - you only make a single call!
- Chain Objects, animating one animates the whole chain!
- Automatic Virtual Space object handling • Dynamic Animation Control

• Build up your animations graphically in the interactive character animator CITAS. Customize all aspects of the object including sequence, placement, speed, display method & priority, object collision detection parameters. Save everything out as a single object addressable by the system! It's **Easy!!**



- Complete Audio System to make sound playback easy!
- Automatic load and play of IFF samples • Interrupt driven background sound replay • Real time effects.

- Easy to use Joystick polling routines • Very efficient ILBM picture loader • Optional custom encryption to protect your artwork and sounds!
- Fully AGA compatible
- Transparent double buffering • Hardware level smooth scrolling on a per viewport basis • Independently scroll playfields in dual playfield mode • Parallax scrolling!

The perfect solution for shoot 'em ups to graphic adventures. Don't let the limitations of the yesterday keep you from forging the masterpiece of tomorrow!

Buy GameSmith today!

A C Compiler or 680x0 Assembler is required to use GameSmith.

DEVPAG 3

The perfect companion for GameSmith and for all of your 680x0 Assembly language needs. Integrated multi-windowed editor, assembler, debugger. Supports all 680x0 processors, 6888x math co-processors, and all Amigas with WB 1.3, 2, or 3

HISOFT BASIC 2

Advanced Structured BASIC Language Development System. A MAJOR upgrade to the popular HiSoft Basic PRO with integrated multi-window editor, compiler, and debugger with WB 1.3, 2.x, and 3.x support.

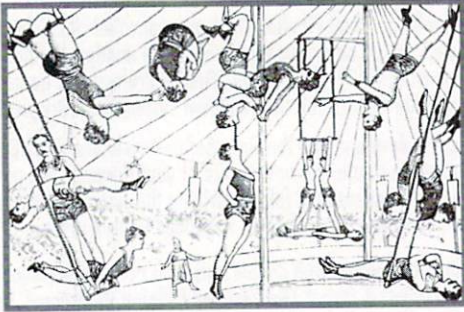
Upgrades are available from any previous version or competitor. Call for more information.



Also from Oregon Research ... **MaxonMAGIC** a fully user configurable modular screen saver and system audio manager. **HighSpeed PASCAL** - A professional PASCAL language development system compatible with Borland TurboPASCAL 5. **VideoMaster A500** and **AGA Color Video/Audio Digitizer & Sequencer** outputs ANIM5's, electronic color splitter available. Call, write, e-mail, or FAX for more information: Oregon Research 16200 S.W. Pacific Hwy, Suite 162 Tigard, OR 97224 PH: (503) 620-4919 FAX: (503) 624-2940 Internet: orres@teleport.com Genie: ORA CompuServe: 71333,2655

INCLUDES TWO 3.5" MS-DOS DISKETTES

SOLUTIONS & SOFTWARE TOOLS



MULTI-PLATFORM CODE MANAGEMENT

KEVIN JAMESON
ISA CORP

O'REILLY & ASSOCIATES, INC.

Discover unique ways to create software for the Amiga and 14 other computer platforms at the same time.

by creating scripts of pre-rendered frames. You can set up loops, reversals, and frame repeats quickly and easily. Once the script is completed, Transporter takes over and processes your orders. Frame Accurate Sequential Frame Grabbing is another feature. Rotoscoping has also never been so simple. Use the Time Lapse option or use Time Grab to send the frames directly to your hard drive instead of video and much more. Everything on your VTR can be controlled right from the screen.

Visual Inspirations, 809 W Hollywood, Tampa, FL 33604, Voice/FAX (813) 935-6410, BBS (813) 935-6513. Inquiry #218

O'Reilly Publishes Step-by-Step Guide to Strategic Software Engineering

O'Reilly & Associates has released *Multi-Platform Code Management*, a step-by-step guide to techniques from advanced software engineering environments that UNIX and MS-DOS programmers can use to structure large projects over many releases and platforms. On two diskettes provided with the book, author Kevin Jameson offers a complete system for managing directories, makefile templates, and source code revisions. Both free software and tools developed by the author are included. Topics covered include: Multi-platform directory structures for isolating and controlling platform dependent code, Automatic makefile generating tools to promote uniform, portable makefiles on your projects and to save you time, file sharing tools that make it easy to share the latest versions of files among multiple developers and software products, automatically and RCSDO, a tool that performs version control operations on entire trees of files at a time. The two accompanying diskettes' source code runs on at least 15 platforms, including Amiga. SRP is \$39.95 (US).

O'Reilly & Associates, Inc., 103 Morris St Ste A, Sebastopol, CA 95472, Tel (707) 829-0515, FAX (707) 829-0104. Inquiry #219

Surface Pro for Lightwave 3D

Surface Pro offers a wide variety of low memory seamless image-based lightwave surfaces. Most require less than 200K of ram to load. Surface Pro gives you over 60 new surfaces and a dozen new objects that are instantly available through Lightwave. Surface Pro retails for \$99.95. *Visual Inspirations*, 809 W Hollywood, Tampa, FL 33604, Voice/FAX (813) 935-6410, BBS (813) 935-6513. Inquiry #220

HyperCache Pro adds workstation style I/O caching to any Amiga storage device. Performance increases of up to 3000% are attainable on typical hard drive usage. V2.0 adds complete write caching and write retention, as well as a new, fully-associative cache engine. This latest release also adds a complete Workbench interface, including Preferences, Installation, and Statistics Monitoring programs, all of which serve to make HyperCache easier to use than ever before. MSRP is \$59.95 US. Owners of Version 1.0 HyperCache product may upgrade by sending their original program disk with \$19.95, plus \$3 S/H (\$5 overseas) to the above address.

Silicon Prairie Software, 4771 148th Ave NE Suite N202, Bellevue, WA 98007, Tel: (206) 556-0618. (Please note the new address and phone number.) Inquiry #216

Magic Lantern V2.0 Released

Magic Lantern V2.0 is the only commercially available program that allows users to create, edit and display delta-compressed animations in up to 24 bit color on all the popular true color display cards for the Amiga, as well as all the native Amiga modes (including AGA). It will also play sound effects in either mono or stereo through the Amiga sound chip during animation play back. New features include virtual memory support; now animations

can be as large as your hard disk. Double Time compression technology can double animation speed and reduce animation sizes by half. Another new compression technology has been added that can speed up some animations (especially those in 16 and 24 bit) by up to 25%, and reduce animation sizes by up to 20%. Rebuilding animations has been optimized, and for large animations can be 75% faster. Direct support for the Retina Z3 has been added. MSRP is \$125.00 US. System requirements include Workbench 2.0 or greater with one megabyte of memory. Recommended system has a hard disk with more memory. Display boards supported include: EGS, Spectrum, Retina (Z2 and Z3), Opal Vision and Picasso II in 8,16 and 24 bit resolutions, Amiga chip set, including all AGA modes, DCTV, HAME, etc. *Terra Nova Development*, PO Box 2202, Ventura, CA 930032-2202, TEL: (805) 652-0531, FAX: (805) 652-1639. Inquiry #217

Transporter 2.0 Price Reduction

Visual Inspirations has announced a price reduction on Transporter 2.0. The new retail price will be \$199.95. Transporter is an advanced animation control program designed to meet the ever increasing needs of the Amiga animator. It provides the perfect link between your Display Device and Single Frame Controller

Road Signs

Road Signs contains over 50 pre-constructed signs ranging from stop to slippery when wet. Also included is a sample LW scene file with tutorial to help you get started. All objects in the set were modeled point by point in Modeler. No 2D or 3D digitizer was used. All signs have single sided polygons for quick render times. No image or clip maps are used. Road Signs comes with a construction directory complete with tutorials. All you have to provide is the text to be placed on the signs. This makes for an unlimited number of signs and the ability to tailor the sign to fit your scene.

Visual Inspirations, 809 W Hollywood, Tampa, FL 33604, Voice/FAX (813) 935-6410, BBS (813) 935-6513. Inquiry #221

TERMITE

Oregon Research has announced the release of TERMITE, a modern Telecommunications package for the Amiga. It is designed so even a novice telecommunicator will feel at home, yet it has all the power and high end features to satisfy the most seasoned user. TERMITE takes full advantage of the Amiga WB 2.0 and higher and is 100% Amiga Style Guide compliant. Features include: communication speeds support from 300 to 115,200 BPS, flexible phone book with unique configurations for each number, support for Multiple Line BBSs, configurable review buffer with cut and paste editing, multi-tasking chat window to prepare text before sending it, configurable Macros, font and screen sensitive displays and much more. TERMITE works on all Amiga systems with 1MB or more of memory and WorkBench 2.0 or higher. TERMITE retails for \$49.95 and will be available in October 1994.

Oregon Research, 16200 S.W. Pacific Hwy Ste 162, Tigard, OR 97224, Tel (503) 620-4919, FAX (503) 624-2940. Inquiry #222

GameSmith

Professional Game development is made easy with the GameSmith Development System from Oregon Research. The system gives you the low level power to create the masterpiece of your dreams. With GameSmith you can easily create anything from arcade shoot 'em ups to graphic role playing adventure, from fast scrollers to hair raising strategy games. Build up your animations graphically in the interactive character animator CITAS. Customize all aspects of the object

including sequence, placement, speed, display method & priority, object collision detection parameters. Save everything out as a single object addressable by the system. The package has over 400 pages of documentation fully describing the system, utility functions, and over 130 library functions complete with a detailed tutorial and many examples. GameSmith works on all Amiga systems and requires a C compiler or 680x0 Assembler to use, support for Pascal and HiSoft BASIC 2 is coming. GameSmith retails for \$129.95 and is available now.

Oregon Research, 16200 S.W. Pacific Hwy Ste 162, Tigard, OR 97224, Tel (503) 620-4919, FAX (503) 624-2940. Inquiry #223

Announcements from Intangible Assets Manufacturing

IAM announces the arrival of **Connect Your Amiga! A Guide to the Internet, LANs, BBSs and Online Services**, a 256 page book packed with information for networking and going online. From background information for the novice to networking hints and tips for advanced users, this book has something for every Amiga owner. With a SRP of \$24.95, the book covers the following topics: About the internet - what it is, what's so great about it, how it works, how to access it, how to join it, how to use it; About telecommunications - selecting and using modems and terminal emulator software, finding downloading, decompressing and using public domain and shareware software; and About networking hardware and software - The SANA-II standard, Ethernet, ARCNet, serial and parallel ports, selecting, configuring and using TCP/IP, SLIP, PPP, Envoy, DECNet, connecting to PCs, Macs, Unix and more. *Inquiry #224*

Also announced is the release of **The Deathbed Vigil ... and Other Tales of Digital Angst**. This 120 minute VHS video tape is a documentary filmed, narrated and produced by Dave Haynie, former senior hardware engineer at Commodore, now senior systems engineer at Scala, Inc. The video shows the famous "Deathbed Vigil Party," the West Chester facilities of Commodore (including the secret engineering lab), as well as interviews with dozens of famous Amiga personalities. It also offers opinions and explanations of many "behind-the-scenes" goings on. *Inquiry #225*

"Connect Your Amiga!" T-shirts are now available from IAM. It comes in 100% black cotton with color star-chart design (from the cover of the book) and the words

"Connect Your Amiga!" List price is \$19.95 for men's S, M, L and XL (add \$2 for XXL or \$4 for XXXL). The shirt is available directly from IAM and from Amiga dealers worldwide. *Inquiry #226*

Intangible Assets Manufacturing, 828 Ormond Ave, Drexel Hill, PA 19026-2604, Tel: 610-853-4406, FAX 610-853-3733. Please try area code 215 if 610 does not connect as problems are still being experienced due to the change in area codes in the region.

On the Ball V1.3

Pure Logic Software has announced version 1.3 of On the Ball, their third major upgrade in less than a year. The new version will ship on or before October 17, 1994 and contains over 40 enhancements and fixes over V1.24. Three major categories of improvements include: 1) Smart reminders - This version has the ability to create shadow reminders months in advance, remind you of past appointments while the computer was off, turn off all or individual reminders, and the ability to launch programs, scripts, or AREXX at a reminder; 2) Integrated application files - Now users can save selected information to a file, merge files, or append selected information to an existing file to help with information sharing, data categorization, and archive maintenance; 3) New Address book printouts - On the Ball now creates customizable table format output of your addressbook. A complete list of new features will be available for fax retrieval from the support line before the release date. The upgrade disk and a manual addendum will be available to registered users for \$10.

Pure Logic Software, 789 Butterfly Rd., Quincy, CA 95971, Voice/FAX (205) 802-7345. Inquiry #227

•AC•

New Product? Industry Announcement?

Send it to:

New Products Editor
Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140
(508) 678-4200
FAX (508) 675-6002

Create An Animated Five-Day Weather Forecast With DeluxePaint IV

by Randy Finch

Some time ago, I worked with our local NBC affiliate to create weather graphics for its local newscast. They had an Amiga 2000 and were using DeluxePaint for graphics production. The main weather maps were downloaded from the AccuWeather service; my job was to create specialized graphics. I created a five-day forecast, a severe weather map, and several other custom graphic screens. One of the things I worked on was an animated five-day forecast. It was created entirely in DeluxePaint. In this article, I will show you how to create this animated forecast. In a future article, I will show you how to use HELM to ease the process of building a five-day animated forecast on a daily basis.

The Screen Layout

Typically, a five-day forecast consists of a title at the top of the screen, five graphic elements for each of the five days, the names of the days, and a high and low temperature for each day. I will follow this same convention. The major difference is that instead of static graphics or color-cycled graphics as is typical, I will be using animated graphics complete with blinking sun, moving clouds, flashing lightning, and falling rain.

To start things off, a screen resolution and size needs to be selected. Since the output will ultimately be used in a television broadcast, the screen needs to be interlaced and overscan. The resolution of TV is not that great (compared to computer output, this is); therefore, a 16-color low resolution screen should be sufficient. The lower resolution will also ensure that the animated screen will run smoothly with no jerkiness. A maximum overscan of 368x482 will be used to make sure there is no border around the screen.

Now the palette needs to be set. I used a blue background. There is a yellow for text and lightning, some greens for the grass, some blues for the sky, and so on. Figure 1 shows the palette I selected.

The Building Blocks

Once the selected screen resolution and palette are set, the graphic elements to be used in the animated forecast need to be created. There are many different types of days that can occur: sunny, partly cloudy, rainy, stormy, snowy, days of hail, flood warning days, etc. For this article, I will discuss the first five.

First, a basic screen design needs to be produced. Figure 2 shows the template I created. From the top down, it has the title, a blank area for inserting the text indicating the days, five boxes for inserting the AnimBrushes that will be created, and color rectangles for inserting the high and low temperature for each day. It is rather plain, but it gets the job done. You can be as artistic as you like putting this template together.

Now it is time to build the static graphic elements that will be used to produce the forecast. Figures 3 and 4 show the ones I created. The top row of Figure 3 shows the core graphics that will be used in each AnimBrush. Each has a dithered green ground and a solid blue sky. The graphic on the left has a light blue sky and will

be used for sunny days. The middle graphic has a medium blue sky that will be used for partly cloudy days. The graphic on the right has a dark blue sky that will be used for overcast days. Each of these graphics is sized to fit inside the hollow rectangular boxes in Figure 2. The graphics themselves are each 50x183 pixels in size. The middle row of Figure 3 shows five singular elements (cloud, lightning bolt, sun, raindrop, and snowflake). The bottom row shows groupings of four of the elements. These groupings will be used to create the AnimBrushes. The three graphics at the top, the sun, and the four element groupings at the bottom of the figure should each be saved as separate brushes.

Figure 4 shows seven different brushes, each containing the names of five days of the week. Each brush starts with a different day. These brushes were designed to fit inside the blank area above the five empty boxes in Figure 1. Thus, for any given day, the days of the week can be added by simply loading the appropriate brush and pasting it in the appropriate location on the template.

A Sunny Day

Now it is time to create the first AnimBrush. Clear the screen in DeluxePaint, load the brush containing the graphic with the light blue sky, and then choose Color/Palette/Use Brush Palette from the menu. This will set the screen palette to that of the brush. Now paste the brush in the middle of the screen. After some experimentation, I decided that a 10-frame animation running at 10 frames per second looked quite good. So, from the menu choose Anim/Frames/Set #, enter 10, and select OK. Also, from the menu, choose Anim/Control/Set Rate and enter 10. This will set the frame rate. At this point you will have a 10-frame animation with each frame containing the pasted brush in the middle of the screen.

Load the sun brush and paste it down on the first frame in the blank blue area away from the ground and sky graphic. Notice that the sun is not symmetric. By rotating the brush 90 degrees, a slightly different looking sun can be created for the next frame of the animation. Choose the menu item Brush/Rotate/90 degrees. This will create a short wide sun due to the odd aspect ratio of a 368x482 screen. To resize this alternate image of the sun to better match the original image, choose the menu item Brush/Size/Halve once and Brush/Size/Double Vert twice. Position the resized brush over top of the original sun in frame one, press the 2 key to jump to the second frame, and paste the altered sun brush to the screen. By alternately pressing the 1 (previous frame) and the 2 (next frame) keys, you can see how good the "blinking" sun looks. Redo these steps if necessary.

Now it is time to add the sun to the light blue sky. Go to frame one. Choose Anim/AnimBrush/Pick Up from the menu. Draw a box around the sun, and when asked how many cells, type in 2. This creates a two-frame AnimBrush of the sun. The frames are slightly different from each other so it gives a slight motion to the sun. To see how the blinking sun looks, hold down the 7 key. This will cycle the AnimBrush frames. Save the AnimBrush by selecting the Anim/AnimBrush/Save menu item. After saving, position the

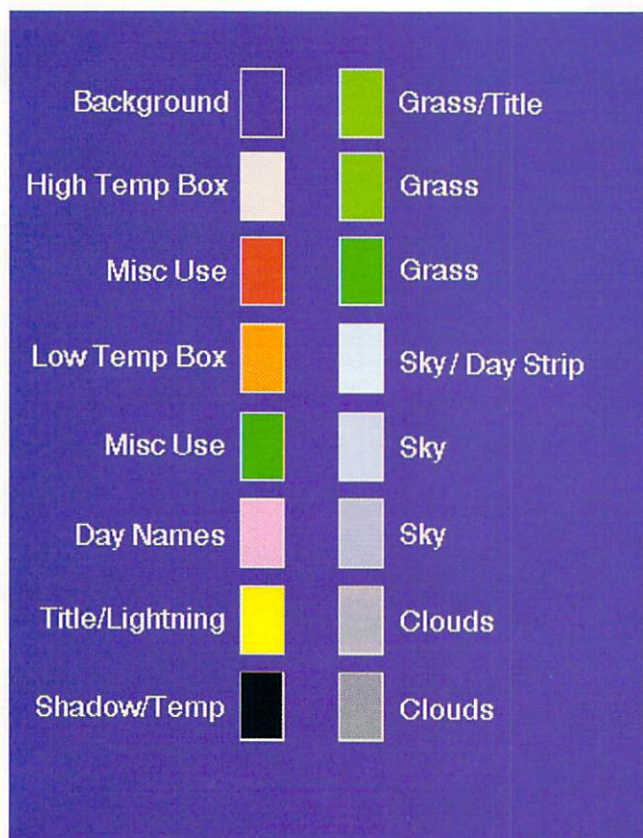


Figure 1. Palette for 5-Day Animated Forecast

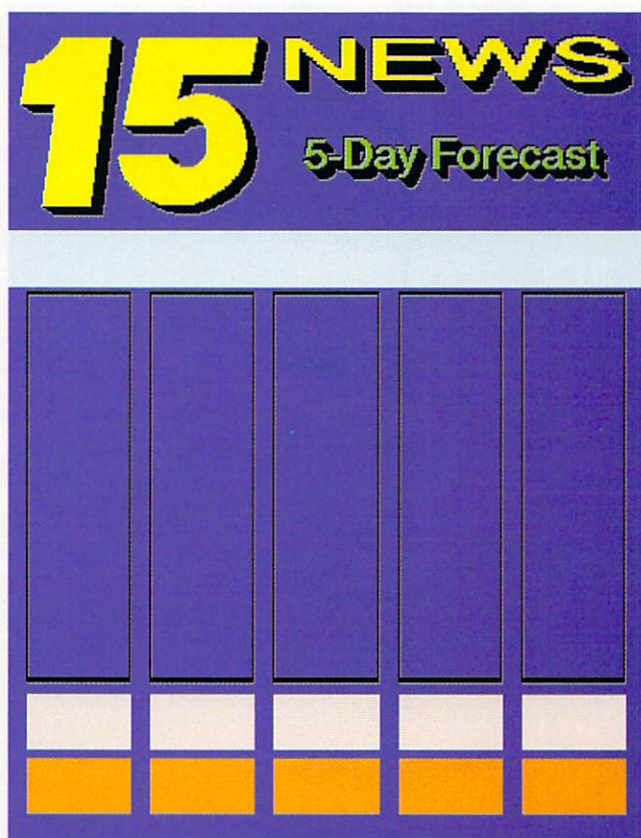


Figure 2. 5-Day Forecast Template

sun AnimBrush in the light blue sky of the graphic in the center of the screen on frame one. Paste the AnimBrush. Press the M key (must be capital) to bring up the Move requester. Make sure all of the settings are as shown in Figure 5 and press the Draw button. This will cause the two-frame AnimBrush to be pasted on each frame of the animation, alternating the two sun images for consecutive frames. The result is a ten-frame animation of a blinking sun in the light blue sky. To see how the animation looks, press the 4 key. Pressing the Esc key will stop the animation.

Make sure frame one is displayed and select the Anim/AnimBrush/Pick Up menu item. Draw a box around the ground and sky graphic and type in 10 when asked how many cells. Click on OK. A 10-frame AnimBrush containing the entire ground and sky graphic with a blinking sun will be created. It should be saved for later use.

A Partly Cloudy Day

A partly cloudy day consists of a sun with some clouds. Since the blinking sun AnimBrush has just been created, it can be used as the base for this graphic. However, the sky needs to be a medium blue. Therefore, there are two approaches that can be used. First, the sky in all ten frames of the sunny day animation can be filled with the medium blue color. Second, the ground and medium blue sky graphic brush can be loaded and the steps to create the sunny day AnimBrush repeated. Either way is okay, but the first way is faster.

Once a 10-frame animation of the ground and medium blue sky with a blinking sun is in place, the moving clouds need to be added. Load the five-cloud grouping brush. Notice that there are two cloud layers in the grouping. The top layer has three clouds

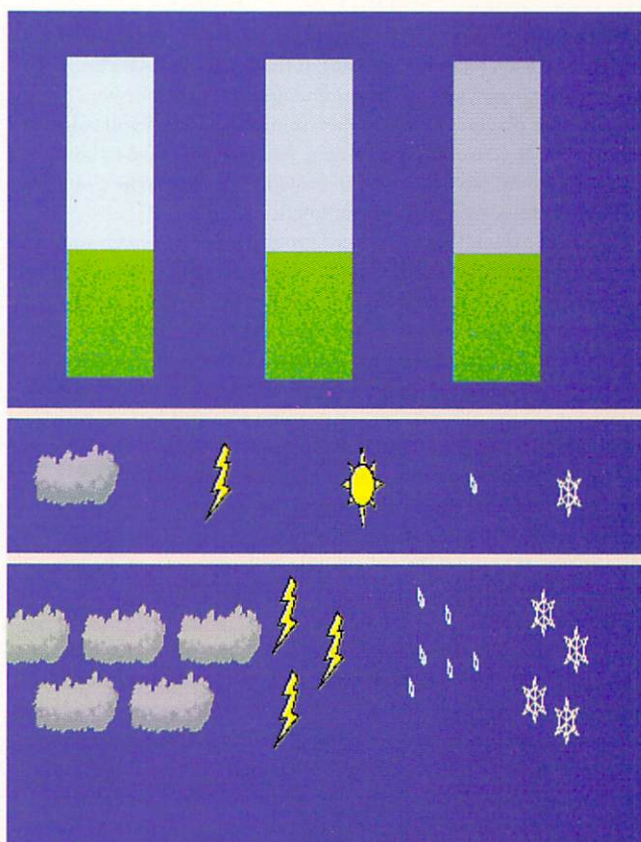


Figure 3. Static Elements for 5-Day Forecast



Figure 4. Days of the Week Brushes

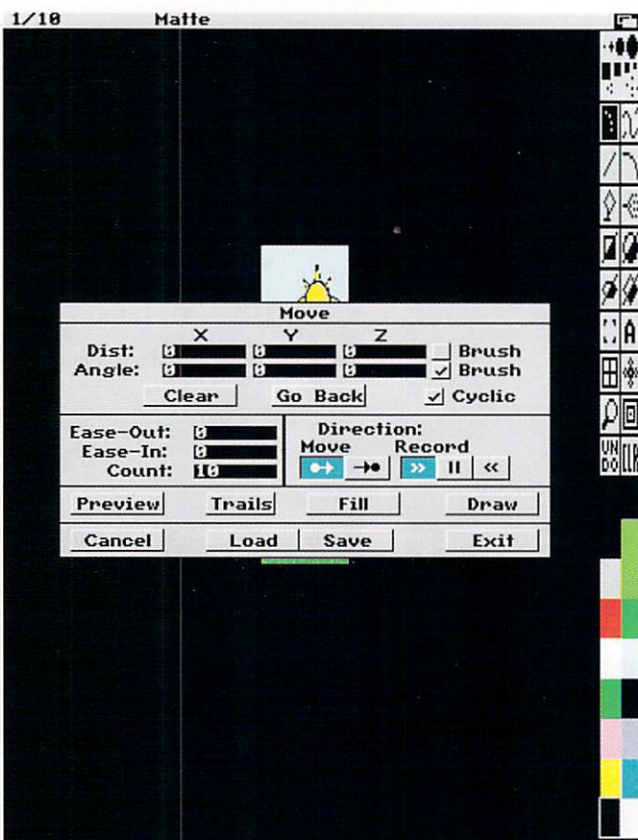


Figure 5. The Move Requester

and the bottom has two. The clouds in each layer are purposefully offset from each other by 55 pixels. If the brush is moved horizontally the 50 pixel width of the ground and sky graphic over 10 frames (five pixels per frame), then frame one, which will come after frame 10 (the animation loops), will look identical to how frame 11 would have looked if it existed. This allows the cloud movement to be smooth as the animation loops.

So, let's do it. Paste the cloud grouping on the screen such that the lower right-most cloud is centered horizontally in the sky. Press M to bring up the Move requester. Select a value of 50 for the X Distance and make sure the value of Count is 10. Click on the Draw button. The clouds will be pasted to each frame of the animation with a five-pixel offset between frames. Pick up an AnimBrush consisting of the ground and sky graphic area and save it. Now clear all frames of the animation and paste the AnimBrush on frame 1. Use the Move requester to add it to each frame in the same way the sun was added earlier (X Distance set to zero). Play the animation. The clouds will move across the sky. As the clouds disappear off to the right, new clouds will appear from the left.

A Rainy Day

For the rainy day graphic, no sun will be shown. Go to frame one and clear all the frames by pressing the CLR button and then selecting All Frames from the requester. Load the ground and dark blue sky graphic and paste it on the first frame. Use the Move requester to copy it to all frames. Next, create the moving clouds just as was done for the partly cloudy day. Go to frame one and load the raindrop grouping brush. Paste it on the screen such that the upper left corner of the brush is in the upper left corner of the

sky, but such that the top raindrop is no higher than the middle of the top cloud layer. Bring up the Move requester. Set the X Distance to about 10, the Y Distance to about -70 (remember Y increases upward in DeluxePaint), and Count to 10. Click on the Preview button. Look closely at how the raindrops appear as they fall towards the ground. Adjust the X and Y Distances until they appear the way you want. Finally, press the Draw button. Again, pick up the graphic as an AnimBrush and save it. To make the rainfall appear harder, repeat the steps for adding the raindrop grouping but begin the brush movement in frame five or six. The movement will loop around to frame one and continue until 10 frames have been drawn.

A Stormy Day

The stormy day will be just like the rainy day but with some lightning added. So, while on frame one of the rainy day animation, load the lightning bolt grouping brush. All that is needed is to add the lightning to various frames of the rainy day animation so that the lightning appears to be flashing on and off. I found that lightning bolts on frames 1, 2, 5, and 6 look quite good. It gives the appearance of two quick flashes and then a pause. Make sure the lightning bolts are in the same position in each frame to which they are added. This is best done by positioning the bolts at the appropriate location in the sky and pressing the Left Alt-Left Amiga key combination (same as pressing the left mouse button). Go to the next frame to which the bolts will be added by pressing the 2 key to advance frames. Paste the bolts with the same key combination. This method will prevent the slight movement that can occur when trying to hold the mouse steady.

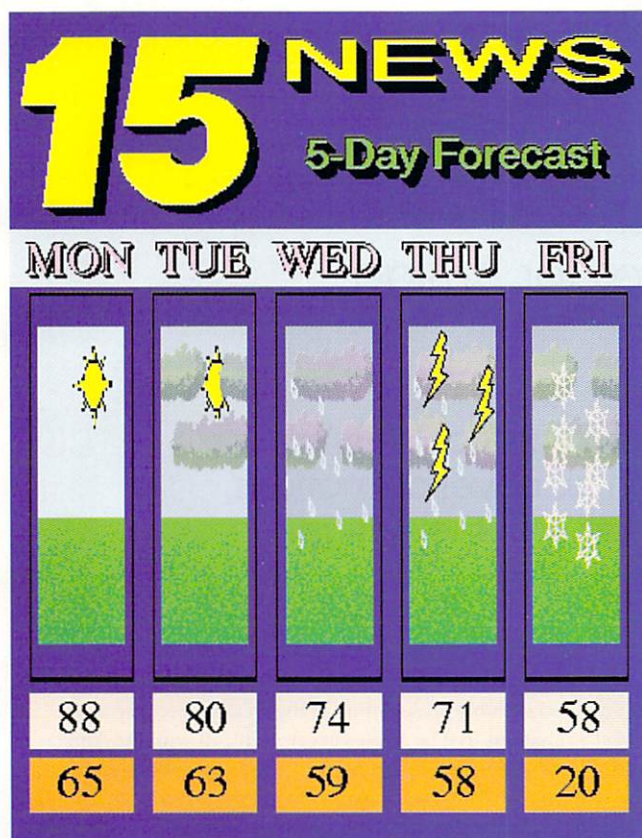


Figure 6. Frame 2 of 5-Day Animated Forecast

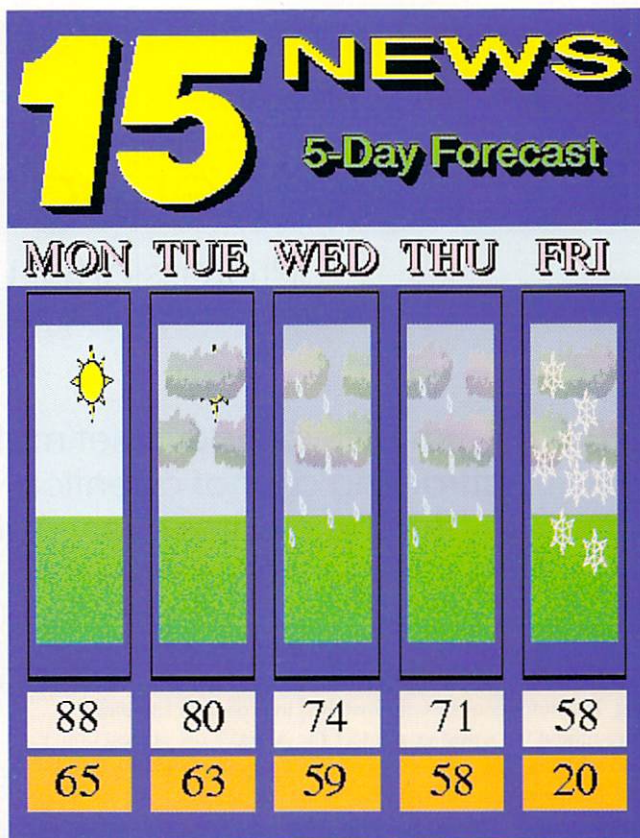


Figure 7. Frame 7 of 5-Day Animated Forecast

A Snowy Day

This one is quite simple now that the other ones have been created. Simply create the moving clouds on a dark blue sky as for the rainy day animation. Now, instead of adding falling raindrops, simply add falling snowflakes using the snowflake grouping brush.

Other Days

What other type of days can you think of? Hail? How would you portray it in the AnimBrush? Perhaps the snowfall will be big. The ground could be changed to white for that one. There are many different types of days that can be created. Play around with it. Let your creative juices flow.

Putting It All Together

Now that the AnimBrushes for the various type of days have been created and saved (you did remember to save them all, didn't you?), it is time to bring everything together for an actual five-day forecast. Delete all the animation frames so there is only the one DeluxePaint work screen. This can be done by setting the number of frames to one. Load the five-day forecast template (Figure 2). Then load the appropriate brush containing the names of the five days to be forecast. Paste is under the title in the appropriate position above the five empty boxes.

Next, select the font and font size to use for the temperatures. Type the low and high temperatures for each day in the appropriate rectangles. Set the number of frames to 10; the filled in template will be copied to all frames.

Load the AnimBrush that represents the type of weather that will prevail on the first day of the forecast. Paste it inside the left-most box of frame one. Use the Move requester to paste it to each

frame of the animation. Do the same for the second day, the third, and so on until all five days have AnimBrushes associated with them.

The animation is now complete. It can be saved as an Anim file for use in a presentation package. Figure 6 shows frame two of a sample I created. Figure 7 shows frame seven of the same sample. I wish I could put the animation in the magazine, but technology has not reached that point yet. You will just have to put one together yourself.

Conclusions

I hope you have had fun working through this tutorial. Using DeluxePaint to build the final five-day forecast can be a bit cumbersome since you must manually load the brushes and paste them in the right location. Probably the most time consuming task is typing in the temperatures. In a follow up article, I will show you how to automate these tasks using HELM.

If you put together something like this for a TV station, I would like to know about it. See you next time.

•AC•

Please Write to:
Randy Finch
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

Need More Weather?

Please read the article by Shamms Mortier *Weathering the Situation* on page 18 of this issue.

Weathering the Situation:

Professional uses for Amiga

by R. Shamms Mortier

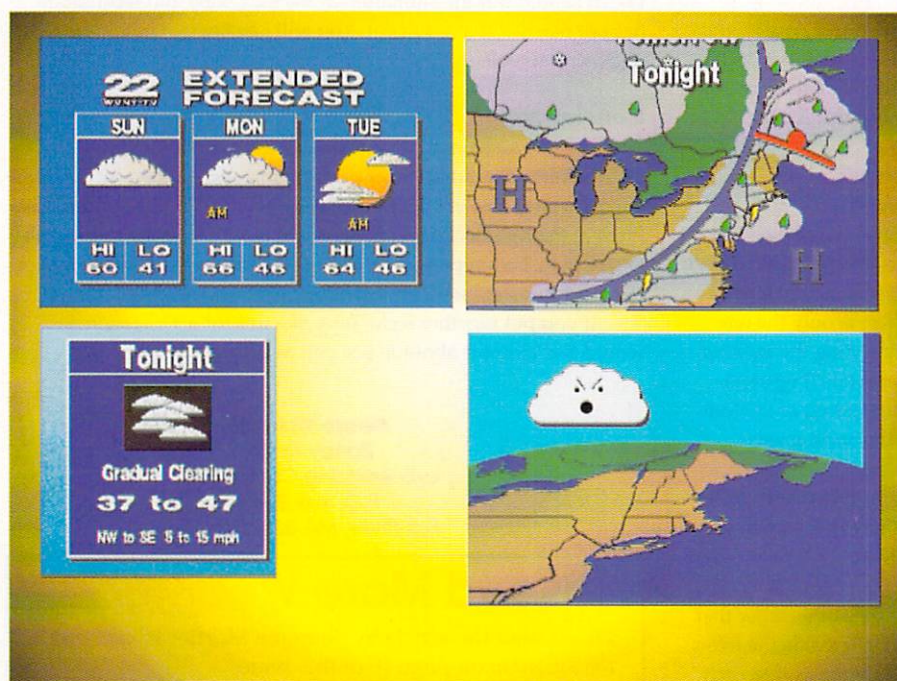
Tim Drawbridge, chief meteorologist for WVNY, is attracting a lot of attention with his novel animations that he creates every night, all with the Amiga.

The advantage of the Amiga is that it was designed for videographic purposes, which means graphics and video interfacing. The number of systems installed in broadcast situations throughout the world guarantees the Amiga's use at least until the end of the decade (even if nobody picks up the technology and takes it the next step). The reasons are simple: low cost, ease of use, and fast quality results. Just how many news rooms and weather broadcast segments are augmented by the Amiga is unknown, but even a cursory investigation in any region of the U.S. suggests that the number is pretty high. In my area, a region whose broadcast demographics include the area from northern Massachusetts to western New York up into Montreal, Canada, I know that three of the five TV stations use Amigas for various tasks. Of course, it is the Toaster that influences many small to medium studios to consider the Amiga (at least so far, while the Amiga remains the only platform that sports Toaster technology, a situation that may be very different by next year).

Channel 22, WVNY, is our regional ABC affiliate. Tim Drawbridge is WVNY's chief meteorologist. Tim is attracting a lot of attention with his presentation of the weather because of the novel animations that he creates every night, all with the Amiga. WVNY has a Toaster that is used for various transitions and tasks, but that's not all Tim uses. I wanted to get some feedback from him on both his creative process with the Amiga as well as what tools and technology he accesses, so I tracked him down for a short interview.

Q: How did you become interested in meteorology?

Tim: It began when I was a youngster living on Long Island. I began my college education at the State University of New York at Albany. I transferred to Lyndon State College in Vermont to further my education. It was there that I devoted myself to my career. I completed two internships. The first was at WTEN, an ABC affiliate, and the other at WNYT, an NBC station. Then in New York city, I completed my final internship at WNTW, a FOX



A selection of animation frames created by weatherman Tim Drawbridge of ABC affiliate WVNY in Burlington, Vermont.

network station. It was at Albany, when I was interning there, that I transformed my hatred for computers to love.

Q: Were you introduced to computers in your internship?

Tim: My responsibility was to prepare my forecast and graphics for the meteorologist in charge. I worked on a WSI (Weather Services Incorporated) 7000 weather graphics machine and learned how to animate and color cycle. I also worked on a "Live-Line 5" graphics machine and learned how important stenciling was to make temperature band maps and weather statistical maps. I also learned more about color cycling, opacity, and color movies at WNYW, where I worked with a "Live-Line 4".

Q: Where were you first introduced to the Amiga?

Tim: My training on the Amiga began at Lyndon State College in my video presentation courses. The Amiga computer was an integral part of the course which prepared me for the college television station. A friend of mine, who had his own Amiga computer at home, assisted me in learning to use Deluxe Paint III and IV and Amiga Vision. After finding out how to use all the keyboard shortcuts, I was soon up and running. While at Lyndon, I had to abide by the standard format set out by the Communication and Meteorology departments in terms of graphics. Thus I wasn't able to use the knowledge that I had gained with the Amiga until I

"Move" requester, however I haven't as yet been able to get the curved line tool to work. Thus I hand draw some animations that illustrate temperatures circling around on a temperature band map. Although it does take a while to build some animations, this capability alone allows the Amiga to compete effectively with more powerful graphics weather machines. While in Amiga Vision, I utilize the Brush Icon to pop-on and wipe-on my weather brushes while we're broadcasting live on air.

Q: I understand you also use the NewTek Toaster in your work.

Tim: Yes. We have version 2.0 at the station. I use the Toaster a lot for my "Good Morning America" presentations, my Marine Forecast video, my AM Weather slides, and soon, for my Garden Weather segment. I make these slides using the Toaster CG with a translucent background over video. When our Dubner character generator goes down for one reason or another, I type all my weather stats in the Toaster CG.

Q: What are your Amiga plans in the near future?

Tim: First, to upgrade WorkBench to 2.1. That way we could purchase and run "Quarterback" so we could service our own equipment better. We'll also be able to use the resizable fonts, and I'll be glad to leave the present blocky fonts behind. The computer is being used a lot by our production department to make commer-

"I have tried to utilize the Amiga to its fullest extent. All work is done on an Amiga 2500, which has only WorkBench 1.3. I prepare most of my graphics in DPaint IV and run my weather sequence through Amiga Vision II. I enhance my weather graphics in ways that force the Amiga to operate like the high-end systems I worked on while in Albany and New York City."

arrived here at WVNY.

Q: And what was different when you arrived at WVNY?

Tim: Since I began here at Channel 22 in Burlington, I have made a great number of changes. I have initiated, organized, and directed two weather programs: Kid's Art and Weather Watchers. I have also built my own walk-on ChromaKey which allows me to give the illusion that I'm walking on my weather maps during my weather casts. I have tried to utilize the Amiga to its fullest extent. All work is done on an Amiga 2500, which has only WorkBench 1.3. I prepare most of my graphics in DPaint IV and run my weather sequence through Amiga Vision II. I enhance my weather graphics in ways that force the Amiga to operate like the high-end systems I worked on while in Albany and New York City. That experience allows me to come up with ideas such as adding borders and shadows to my fonts. I color cycle "severe thunderstorm watch" boxes through the animation mode by adjusting the speed of the animation.

Q: Can you tell us a bit more concerning your use of DPaint?

Tim: Most of my DPaint animations are performed through the

cial and the sports department is using it to design sports scoreboards as well. The latest DPaint is also on our list of upcoming purchases.

Q: Any final comments for our Amazing readers?

Tim: The Amiga is a great graphics computer that I utilize to the fullest at WVNY. With all of the changes that I have made here, the ones that utilize computer graphics remain the most startling, and I have the Amiga to thank for helping me in that process.

•AC•

Please Write to:
R. Shamms Mortier
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

On The Ball 1.24

reviewed by Henning Vahlenkamp

Over the years, a number of personal information managers (PIMs) have been released for the Amiga. These types of programs generally provide some combination of appointment book, address book, to-do list, and note pad features. Pure Logic Software's *On The Ball* combines all of the above using a smart, versatile interface. In fact, I am inclined to believe its claim to be "the best information manager for the Amiga."

On The Ball consists of a 235K executable accompanied by some small secondary support files supplied on one floppy disk and a good 60-page instruction manual. The program should work on any Amiga with AmigaDOS 1.3+ and 330K free RAM. I'd recommend more than the minimum 1MB total memory if, like me, you want to do other things when *On The Ball* is active. A hard disk also makes it a lot more practical.

While *On The Ball* doesn't use the standard Commodore Installer, its custom install utility does get the job done without much trouble. Besides copying everything (except the sample ARexx scripts), it adds two lines to your User-Startup file so that *On The Ball* executes every time you boot. I was surprised to see a corresponding uninstall utility, but disappointed to discover that it doesn't remove the actual program, only the references from User-Startup.

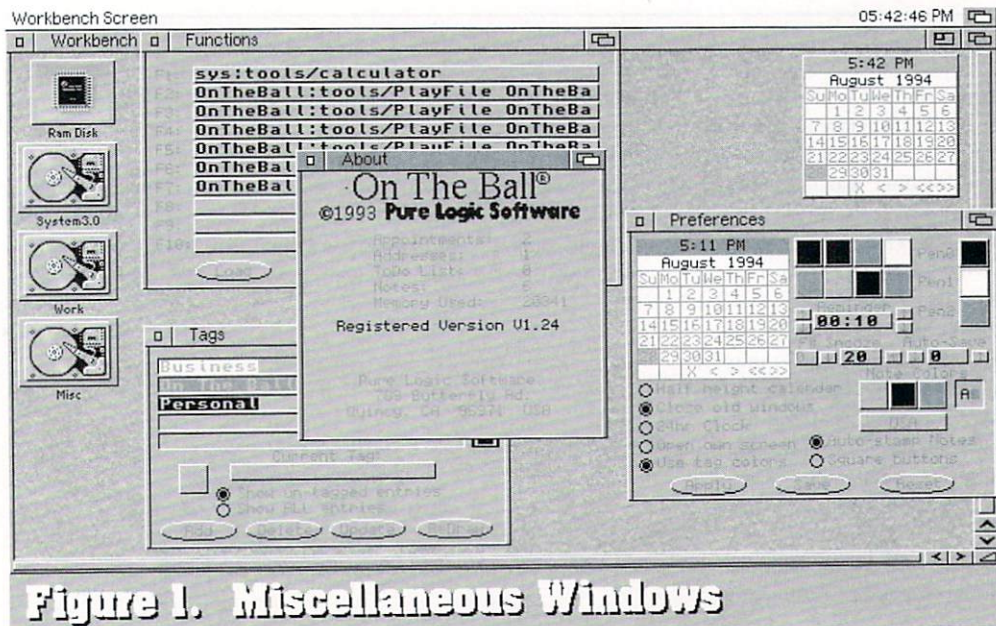
The Front End

When you run *On The Ball*, a small monthly calendar window appears showing the current time and day within the current month. From here, you can click to move quickly to other days, months, and years. This window - the gateway to preferences, tags, and applications - is the only one of *On The Ball*'s windows that must be open at all times.

Many of the preferences settings concern the appearance of the calendar window (colors, size, 12/24-hour clock). This window also lets you set reminder and snooze times before appointments. Reminders and snoozes generate requesters when they come due. In addition, snoozes can execute an associated function - an AmigaDOS command. A separate window is used to create up to 40 functions, which may also be executed by pressing associated function keys. Other assorted preferences settings include a timed autosave for your data file and the ability to change *On The Ball*'s language, font, and screenmode (Workbench or custom screen).

Tags are fundamentally what their name implies: arbitrary labels that can be assigned to entries in each of *On The Ball*'s applications. The tags requester makes creating and using them easy. This powerful feature lets you search for and organize groups of information (Business, Personal, etc.). Though optional, tags are particularly valuable when you're dealing with lots of data.

All of *On The Ball*'s applications appear in a single multi-application window that changes its contents accordingly. An application may open supplemental windows too. The Add, Delete, Update, Search, and Print gadgets remain across applications however. A handy gadget panel across the bottom lets you easily switch among Appointments, Addressbook, To-Do List, and Note Pad. This design scheme nicely creates consistency and eliminates



All of *On The Ball*'s applications appear in a single multi-application window that changes its contents accordingly.

the confusion of having the applications jumbled together.

Appointments

The Appointments application helps you organize your schedule (going places, meeting people, etc.) according to time periods. To make an appointment, you first select a starting/ending time and a reminder time. Unlike the global preferences reminder, this one can vary with each appointment, and it can have an associated function like the preferences snooze feature. Next, enter a note about the appointment. Then you must decide how the appointment will repeat. The amazingly sophisticated repeat feature offers 11 modes ranging from No Repeat to Daily. And you get a choice of applying the repeat mode forever or a selected number of times. Moreover, a requester warns when appointments overlap.

I am inclined to believe its claim to be "the best information manager for the Amiga."

Although the Appointments window handles individual days, it provides gadgets for viewing whole weeks, months, and years in their own windows. The weekly view is especially useful, as it displays a comprehensive overview of your schedule from day to day. Magnification and reduction capabilities change the level of detail in this view. All three views can be dumped to any Amiga graphic printer. The graphical outputs (matching those in the windows) are really professional, doubling as attractive custom-made calendars.

Addressbook

The Addressbook serves double duty as an electronic rolodex and a mailing list manager. Each entry contains the usual fields you'd expect: name, street address, city, state, zip code, country, company, and phone number. There's also a work phone number field with a maximum 20-item cycle gadget, allowing you to store other things such as fax numbers and email addresses. Addressbook entries can be sorted

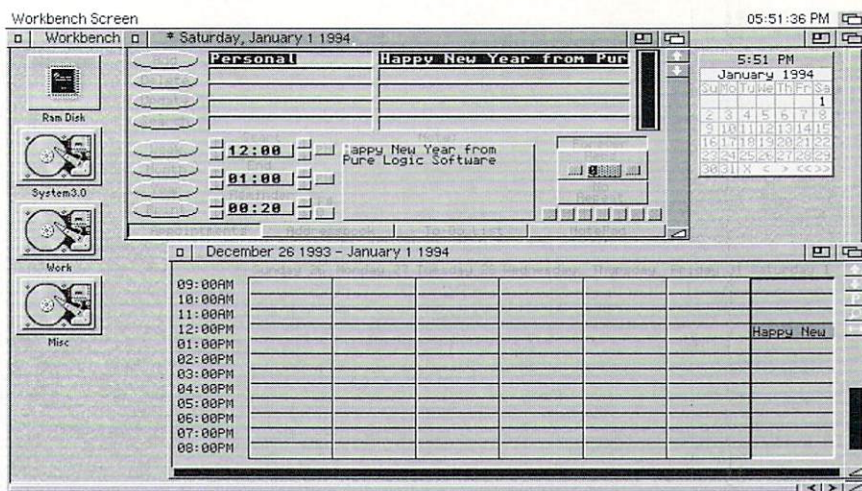


Figure 2. Appointment Mode

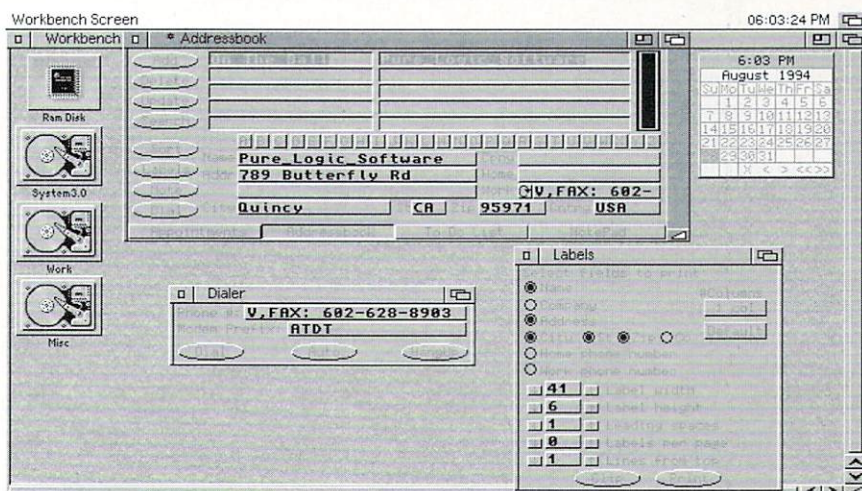


Figure 3. Addressbook Mode

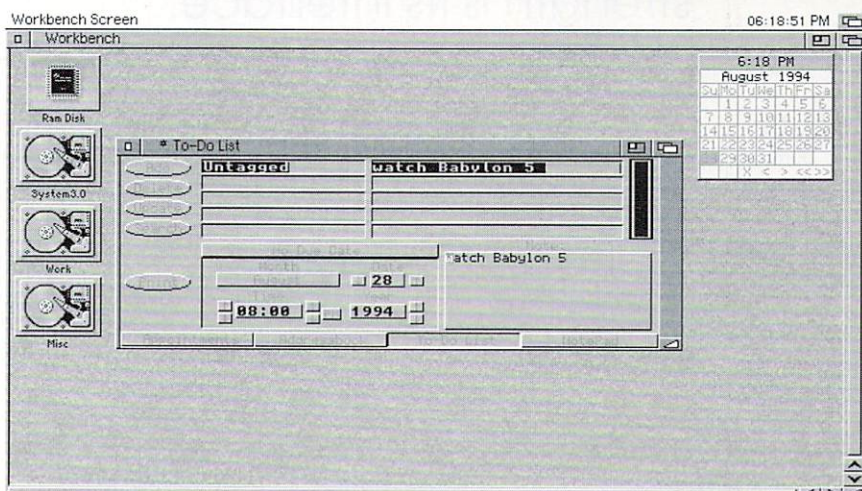


Figure 4. To-Do List Mode

on any field, and the "A..Z" rolodex buttons provide easy indexing. Entries may have associated notes, which are created with the same editor the Note Pad uses. There's even

a dialer that calls phone numbers if you have a modem and a phone on the same line.

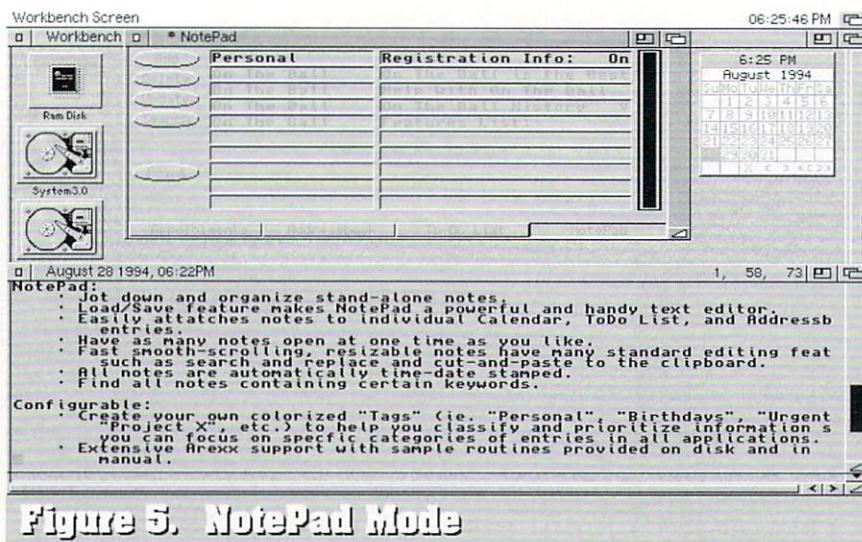


Figure 5. NotePad Mode

The mailing list capabilities amount to printing labels using Addressbook entries. If you want to output to other things like envelopes or file cards, you should check out Address It! from Legendary Design Technologies or other similar dedicated programs. However, you do get quite a bit of control over label design. The label requester lets you choose the included fields as well as the label layout. You can select one of the three standard Avery label layouts or create your own custom ones.

Note Pad

The Note Pad is for storing miscellaneous bits of information that don't fit anywhere else. As with the To-Do List, all entries appear in a single chronologically sorted list. An integrated text editor, sporting its own window and menus, handles the note editing. The editor has the basic features such as full cursor control, cut/copy/paste/clear, line undelete, find/replace, and the ability to load and save

Besides a significant depth of features, On The Ball's greatest strength is its interface.

To-Do List

Some users may find the To-Do List, a much-simplified version of the Appointment book, to be redundant. This application is supposed to organize your activities, but they can be combined just as well with your appointments. Of course if you prefer separating the two and don't mind the reduced functionality, then by all means use the To-Do List.

Unlike appointments, To-Do List entries are not grouped by days. Rather, they all appear in a single list whose entries with due dates are sorted chronologically. Furthermore, this application has no reminder or repetition features.

notes as separate text files. But Note Pad certainly doesn't rival powerful stand-alone text editors, although it can be very convenient.

Likes and Dislikes

Besides a significant depth of features, On The Ball's greatest strength is its interface. As I mentioned earlier, the separation of the four applications keeps things orderly, yet their similar designs let you effortlessly move from one to another. Once you get accustomed to the interface and how the program works, you'll hardly ever have to dig out the manual.

Synchronization among windows is another big plus. For example, when you click on a day in the calendar window, all

the other relevant windows automatically switch to that day. And various windows from different applications can be open simultaneously. Such conveniences along with healthy ARexx support (42 commands) clearly show that On The Ball was programmed with the user in mind.

Perhaps the biggest problem with On The Ball concerns importing and exporting information. For starters, Nag is the only other PIM from which On The Ball can import data, using a separate conversion program. You also can't export information from the Appointment book or the To-Do List unless you redirect printer output with the AmigaDOS CMD utility - an inelegant substitute. These two applications should have the option to send output to the clipboard like the Addressbook does. At least all the applications support printer output.

Another thing is that the scroll arrows (for moving through days, weeks, months, and years) in the Appointment book work counter-intuitively, so "down" takes you backward and "up" goes forward. These are usually the other way around (e.g. moving through text files). It would also be nice if On The Ball had an optional autobackup in addition to the autosave for its data file. Finally, the manual is a bit inaccurate, as it was apparently written for the previous version 1.20.

Summary

Since high-quality management software is rarer than it should be for the Amiga, it's especially nice to see a program like On The Ball. This excellent PIM can go a long way toward getting you organized. Of course the catch with any such program is that you need to use your Amiga regularly to take maximum advantage of it. However, you'll find that diligently using On The Ball is well worth the effort.

A demo of the previous version 1.20 is available on Aminet on the Internet (/biz/demo/OnTheBall_V120.lha 206K), so you can try before you buy. And an upgraded version 1.30 is in the works.

Editor's Note: On The Ball 3.0 has just been released. Please see the New Products section beginning on page 9 of this issue.

•AC•

On The Ball 1.24
Pure Logic Software
789 Butterfly Road
Quincy, CA 95971
(602) 628-8903
Inquiry #200

Your Choices!



Amazing Computing is proud to present the third annual Amazing Computing Readers' Choice Awards. The 1994 award winners were determined by ballots completed by our readers. The Ballots were published in the June and July issues of AC. As in previous years, ballots were received from AC readers around the world. We would like to express our sincere gratitude to all the readers who participated in this event and to congratulate all the winners.

3-D



Imagine
Impulse, Inc.
8416 Xerxes Avenue
North
Brooklyn Park, MN 55444
(612) 425-0557
FAX (612) 425-0701

Desktop Video



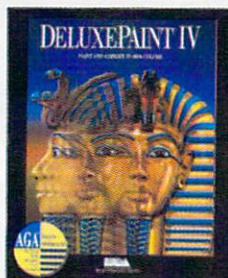
Video Toaster
NewTek
215 S.E. 8th St.
Topeka, KS 66603
(913) 354-1146
(800) 843-8934
FAX (913) 354-1584

Text Editors



Turbo Text
Oxxi, Inc.
P.O. Box 90309
Long Beach, CA 90809-0309
(310) 427-1227
FAX (310) 427-0971

Painting or Drawing



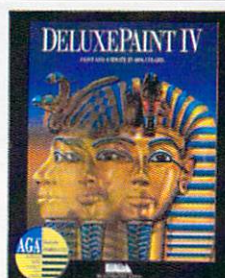
Deluxe Paint IV
Electronic Arts
1450 Fashion Island Blvd.
San Mateo, CA 94404
(800) 245-4525
(415) 571-7171
FAX (415) 571-7995

Image Processing



AdPro
Elastic Reality
925 Stewart St.
Madison, WI 53713
(608) 273-6585
FAX (608) 271-1988

Animation



Deluxe Paint
Electronic Arts
1450 Fashion Island Blvd.
San Mateo, CA 94404
(800) 245-4525
(415) 571-7171
FAX (415) 571-7995

1

9

9

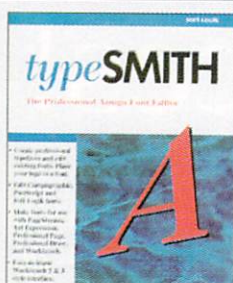
4

READERS' CHOICE AWARDS



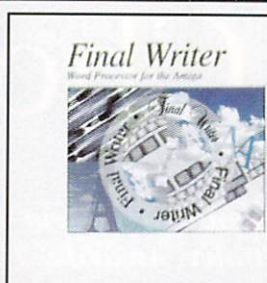
1994

DTP Accessory



Typesmith
Soft-Logik Publishing Corp.
11131 S. Towne Sq. Ste. F
St. Louis, MO 63123
(314) 894-8608
(800) 829-8608 sales
FAX (314) 894-3280

Word Processor



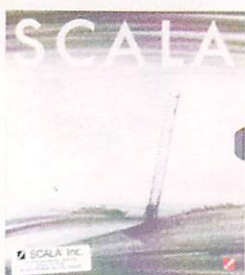
Final Writer
SoftWood, Inc.
P.O. Box 50178
Phoenix, AZ 85076
(800) 247-8330
(602) 431-9151
FAX (602) 431-8361

DeskTop Publishing



PageStream
Soft-Logik Publishing Corp.
11131 S. Towne Sq. Ste. F
St. Louis, MO 63123
(314) 894-8608
(800) 829-8608 sales
FAX (314) 894-3280

Presentation Program

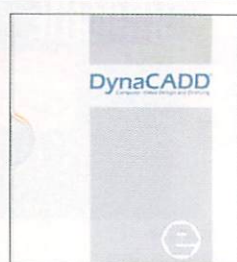


Scala
Scala, Inc.
2323 Horse Pen Rd.
Ste. 202
Herndon, VA 22071
(703) 713-0900
FAX (703) 713-1960

CAD (tie)

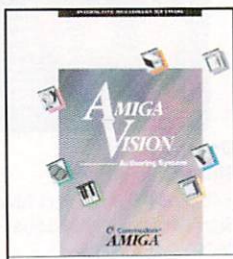


Draw 2000
Oxxi, Inc.
P.O. Box 90309
Long Beach, CA 90809-0309
(310) 427-1227
FAX (310) 427-0971



DynaCADD
Ditek International
2800 John St., Unit 15
Markham, Ontario,
Canada L3R 0E2
(416) 479-1990
FAX (416) 479-1882

Authoring System



AmigaVision
Commodore Business
Machines
1200 Wilson Drive
West Chester, PA 19380
(215) 431-9100
FAX (215) 431-9465

Music



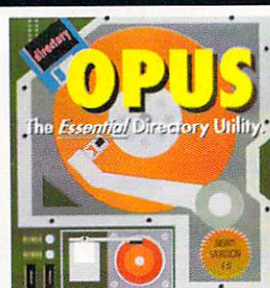
Deluxe Music
Electronic Arts
1450 Fashion Island Blvd.
San Mateo, CA 94404
(800) 245-4525
(415) 571-7171
FAX (415) 571-7995

Education



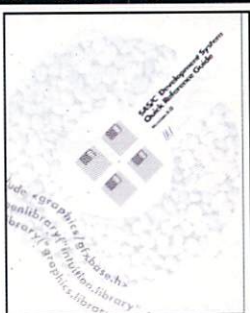
Distant Suns
Virtual Reality Labs
2341 Ganador Court
San Luis Obispo, CA 93401
(805) 545-8515
(800) 829-VRLI
FAX (805) 781-2259

Utilities



Directory Opus
INOVAtronic, Inc.
 8499 Greenville Ave., Ste.
 209B
 Dallas, TX 75231
 (214) 340-4991
 FAX (214) 340-8514

Language/Programming



SAS/C
SAS Institute Inc.
 SAS Campus Drive
 Cary, NC 27513
 (919) 677-8000
 FAX (919) 677-8123

Business Package



SuperBase Pro
Oxxi, Inc.
 P.O. Box 90309
 Long Beach, CA 90809-
 0309
 (310) 427-1227
 FAX (310) 427-0971



1

Telecommunications



Term
Venn Software Ltd.
 328-1027 Davie Street
 Vancouver, B.C.,
 Canada V6E 4L2
 FAX (604) 682-8578

Favorite Game



Lemmings
Psygnosis Limited
 675 Massachusetts Ave.
 Cambridge, MA 02139
 (617) 497-5457
 (617) 497-7794
 FAX (617) 497-6759

BEST! CDTV/CD32



Microcosm
Psygnosis Limited
 675 Massachusetts Ave.
 Cambridge, MA 02139
 (617) 497-5457
 (617) 497-7794
 FAX (617) 497-6759

9

9

Hard Drive Controllers



Series II
Great Valley Products
 600 Clark Avenue
 King of Prussia, PA 19406
 (610) 337-8770
 (610) 354-9495 Tech
 FAX (610) 337-9922

Emulator

EMPLANT™

Emplant
Utilities Unlimited
 1641 McCulloch Blvd, Ste
 #25-124
 Lake Havas City, AZ 86403
 (602) 680-9004
 FAX (602) 680-9006

CD-ROM



NEC Technologies, Inc.
Professional Systems
Division
 1255 Michael Drive
 Wood Dale, IL 60191
 (800) 562-5200
 FAX (708) 860-5812

4



1
9
9
4

Best Technical Support

SoftWood

SoftWood, Inc.
P.O. Box 50178
Phoenix, AZ 85076
(800) 247-8330
(602) 431-9151
FAX (602) 431-8361

Best Manufacturer/Service



Great Valley Products
600 Clark Avenue
King of Prussia, PA 19406
(610) 337-8770
(610) 354-9495 Tech
FAX (610) 337-9922

Best Game Manufacturer



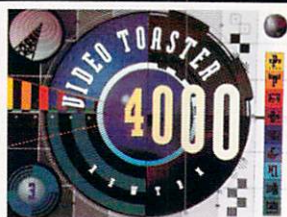
Psygnosis Limited
675 Massachusetts Ave.
Cambridge, MA 02139
(617) 497-5457
(617) 497-7794
FAX (617) 497-6759

Video Hardware Accessories.



DCTV
Digital Creations
P.O. Box 97
Folsom, CA 95763-0097
(916) 344-4825
FAX (916) 635-0475

Video Switcher



Video Toaster
NewTek
215 S.E. 8th St.
Topeka, KS 66603
(913) 354-1146
(800) 843-8934
FAX (913) 354-1584

Graphics Card



OpalVision
Centaur Software, Inc.
2645 Maricopa St.
Torrence, CA 90503
(310) 542-2292
FAX (310) 542-9998

Scanners/Digitizers



DCTV
Digital Creations
P.O. Box 97
Folsom, CA 95763-0097
(916) 344-4825
FAX (916) 635-0475

2 AWARDS Laser Printer & Dot Matrix/Ink Jet



**Hewlett-Packard Com-
pany**
16399 W. Bernardo Drive
San Diego, CA 92127-1899
(619) 592-4676

2 AWARDS Memory Expansion & Accelerators



Great Valley Products
600 Clark Avenue
King of Prussia, PA 19406
(610) 337-8770
(610) 354-9495 Tech
FAX (610) 337-9922

TrapFax

reviewed by Mark Rickan

TrapDoor Development's TrapFax provides fax transmission, scheduling and phone book facilities.

As information increasingly becomes our most valuable commodity, we inevitably seek means to automate the transfer and storage of important data. While postal services and specialized couriers fulfill a large proportion of this demand, there are instances when it is critical for documents to be transmitted almost instantly. For those involved in consulting, product promotion or publishing, there are moments when something positively, absolutely has to be there — now. Available in North America through Expert Services, TrapFax from Austria's TrapDoor Development offers a viable solution to this dilemma.

As its name suggests, TrapFax (\$129.95) is an integrated fax management utility which provides fax transmission, scheduling and phone book facilities. Requiring revision 2.04 of the operating system, a hard drive and a minimum of 512k of available memory, TrapFax offers support for any Class 2 CCITT TR29.2 modem with fax transfer capabilities. The package consists of a single program disk and a nicely documented, spiral bound manual. I took the opportunity to test the program on an A3000 system equipped with 8MB of RAM, a Picasso II graphics adaptor and revision 3.1 of the operating system.

Installation and Setup

Transferring TrapFax from the installation disk to an internal hard drive is accomplished by means of Commodore's standard Install utility. By simply double-clicking on the TrapFax-Install icon you are able to specify the destination drawer and whether or not to include the sample files and Multiview fax data type. Once this process is complete you are ready to venture into the world of automated fax transmission and management.

Adopting an implementation strategy similar to its predecessors on other platforms, TrapFax transparently integrates itself with the rest of the system. Activating TFaxAnswer monitors all incoming calls and stores any received faxes in a user-specified location. On the transmission side, virtually any program which has provisions for printed output instantly becomes capable of transmitting a fax. The program accomplishes this by intercepting and redirecting all printed information from the standard output device to the TrapFax driver. If for example, you would like to send a press release or product announcement which you have generated within Final Writer or Pagemaster, you would simply activate the TrapFax driver and then invoke the printing option within either of these applications. Toggling between the standard printer output and fax modes is simply a matter of double-clicking on the TFaxPrinter utility.

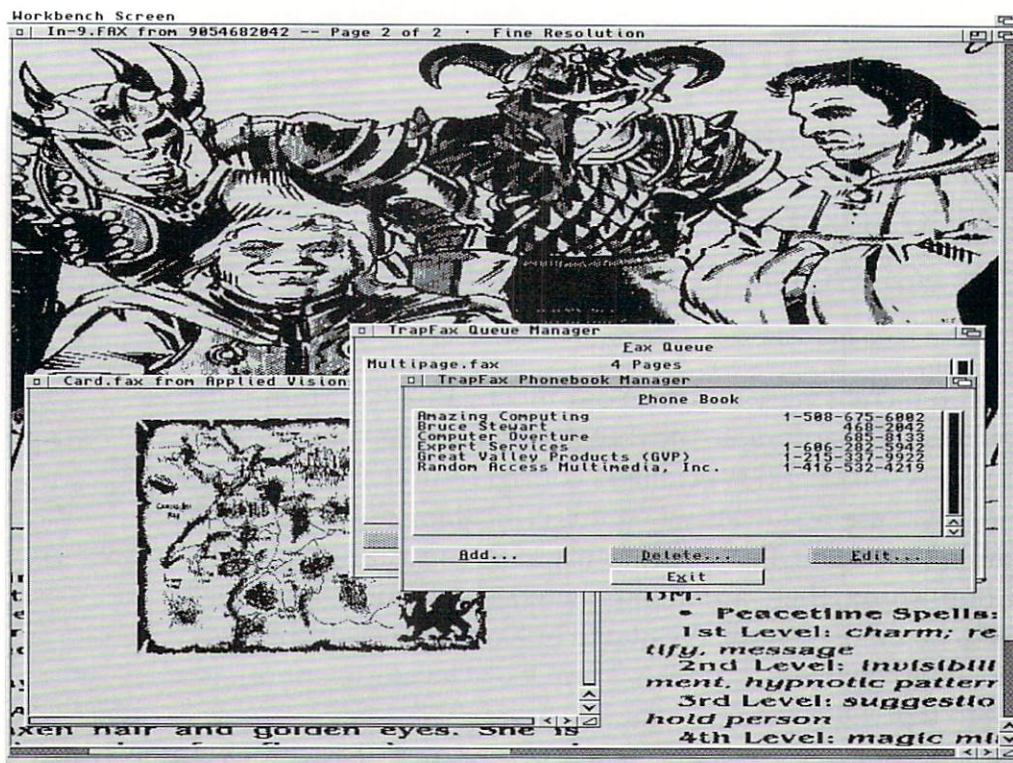
Fax Management

Once you have chosen to print a document from within your current application, TrapFax allows you to direct the resulting fax to an appropriate phone number by means of its queuing module. The TFaxQueue utility provides options for specifying fax recipients and their corresponding numbers, either individually or by means of a phone book. This approach will prove to be especially helpful to those users that frequently send faxes to a set of clients or contacts. In addition, the TrapFax queue manager allows you to specify the time at which to send a fax and the duration to be used to compensate for busy signals or downtime at the receiving end. Once the specified time limit has expired, you may optionally select to re-send the fax the following day at the same time. All fax transmission attempts are conveniently logged in a data file, with records indicating the sequence, times, remote fax identification numbers and other pertinent information.

The program also makes it possible to add, delete, view a fax or edit the scheduling or phone book information as desired. ARExx users will especially appreciate the program's ability to automate repetitive tasks and to customize the program for unattended fax transmission and reception. In fact, because TrapFax offers a modular design, it is quite conceivable that you could use it as the basis of a cost-effective 'fax-back' system for on-demand information transfer. When you take into account the program's support for both networked environments and TrapDoor's self-titled Fidonet mailer package, you quickly begin to appreciate its power and sophistication.

Accessories

Apart from the central TFaxQueue utility, TrapFax offers a bevy of programs for making fax management an even more intuitive process. Perhaps the most important of these is the TFaxView application. This module allows you to load outgoing or incoming faxes saved in the FAXX IFF format, and to either print a



TrapFax (\$129.95) is an integrated fax management utility which provides fax transmission, scheduling and phone book facilities.

hard copy of the fax or to export it as an ILM bitmap for use in other programs. A particularly handy element of this program is the selection feature, which allows you to clip select regions of the fax and copy the area to the clipboard or to a file. Among the other useful utilities bundled with TrapFax, the authors have thoughtfully added a TFaxJoin application, which allows you to append fax pages to one another.

Just the Fax

As a new entry into the realm of Amiga productivity packages, TrapFax offers the versatility and elegance of well-seasoned veterans. The user interface, ARexx support and execution are all first rate and position the program as a stand out in its class. Even those relatively unfamiliar with fax transfer technology will find the program to be easy to use, yet capable of supporting even the most demanding environments. And provided that you have carefully configured your page dimensions and transfer settings, you will find that transmissions are flawless.

This is not to say that TrapFax has reached the apex of its development however. By far the most glaring omission in the current release is the lack of support for Class 1 fax modems. While the industry has gravitated somewhat towards the Class 2 standard, those users with popular modems such as the US Robotics Sportster series will be disappointed that TrapFax will not be of any help to them. Fortunately, the authors have indicated that they are working on support for the Class 1 standard, and this may be incorporated into the program by the time you read this.

Another minor area in which TrapFax could stand for improvement is in handling outgoing calls. At the present time, the program dials out as a background process. While this is a convenient and efficient approach, it is quite difficult to cancel a call once it is in progress. In future editions, I'd like to see an option available for cancelling or retrying a call as desired. As you can

imagine, if you type in an incorrect number and step out for a moment, you could come back and discover that you have a rather irate person on the other end of the line. A related concern is the current duration system which is used to determine the time in which repeated attempts will be made to gain a connection. I'd prefer to see this option specified as an absolute number which would indicate the number of attempts rather than the total calling time.

Finally, TrapFax would become a virtually unbeatable program if it made provisions for a few extra features. Automatically appending predefined cover sheets to outgoing fax transmissions would be a welcome addition, as would the ability to "drag and drop" ASCII and IFF files for automatic detection and transfer. Those concerns aside, the authors of TrapFax should be heartily commended for their efforts. This program fills a major void in the area of Amiga productivity software and further attests to the fact that the platform is equally suited to the demands of business and information management.

But please excuse me, I see that I have an incoming fax...

Expert Services
7559 Mall Road
Florence, KY 41042-1401
(606) 371-9690
FAX (606) 282-5942
Inquiry #228

Please Write to:
Mark Rickan
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

Two from Spectronics: Adorage and ClariSSA

Paradox in the making

by R. Shamms Mortier

Spectronics is one of the newer players on the Amiga scene, at least in the States, but it comes in with a wealth of products. They market Amigalink (a novel Joyport networking solution), Renderlink (for LightWave render farm applications), DirWork (a user configurable directory utility), Adorage (a video FX generator), ClariSSA (an animation speed-up system for the Amiga), PhotworX (a Photo-CD utility), ReproStudio (an intended "PhotoShop" for the Amiga), the Merlin graphics board, and more. In this article we will take a detailed look at two of their wares: Adorage and ClariSSA.

Adorage

Adorage is the simpler of the two wares. It creates "ADO's", which are the animated screen wipes and fades usually associated with high-end studio equipment and/or the NewTek Video Toaster system. The trick is, Adorage does this entirely in software. The results of Adorage ADO's are designed to be targeted to videotape, and a genlock is suggested as a part of the Adorage animated process. Adorage is part of the overall "SSA" (Super Smooth Animation) system, a new animation format that promises to play back animations at 60 frames per second on most all Amigas. Up to now, the ANIM formats that users are accustomed to placing their graphics in was not capable of these kinds of speeds except with very specific and expensive hardware (accelerators, etc.). I tested this software on a 68030 Amiga 2000, which although it is accelerated was never able to play animations (especially 16 color hi-res ones that had a lot going on) close to the 60 fps rate. One advantage

of the Adorage SSA system is that no calls are made to CHIP RAM (as different from animation playback within Brilliance or DPaint), so that CHIP RAM is no longer a limitation to playback speed. HAM animations, sadly, are not a part of Adorage's SSA diet at this time (severe fringing effects occur). All of the controls in Adorage are graphically represented. There are no verbal pull-down menus to access. That would be OK if the interface were easy to understand, which it isn't.

The problem here is that the process, as far as a high level view of it, is much more simple than the over-complicated interface would have you believe. You are looking to import a graphic, apply an effect to it, and save it out (either as an IFF animation or in the new SSA format). There should be one Preferences screen that sits behind the action screen, and it should be available with all attendant Parameter info at all times. You shouldn't have to access Preferences for Adorage by the convoluted process it now employs. As a long time user of effects processing software, I would recommend that the developers study Gary Bonham's program Lights, Camera, Action. Though "Lights, Camera, Action!" is also complex, its arrangement of tools and techniques quickly becomes intuitive with just a little use, unlike Adorage.

The SSA animation format is a new attempt to overhaul the IFF animation standard. Just like the attempt to revise the standard television screen ratio from its present dimensions to HDTV sizes, the problem rests in the penetration of the older standard and that people get used to things as they are. The advantages of the new

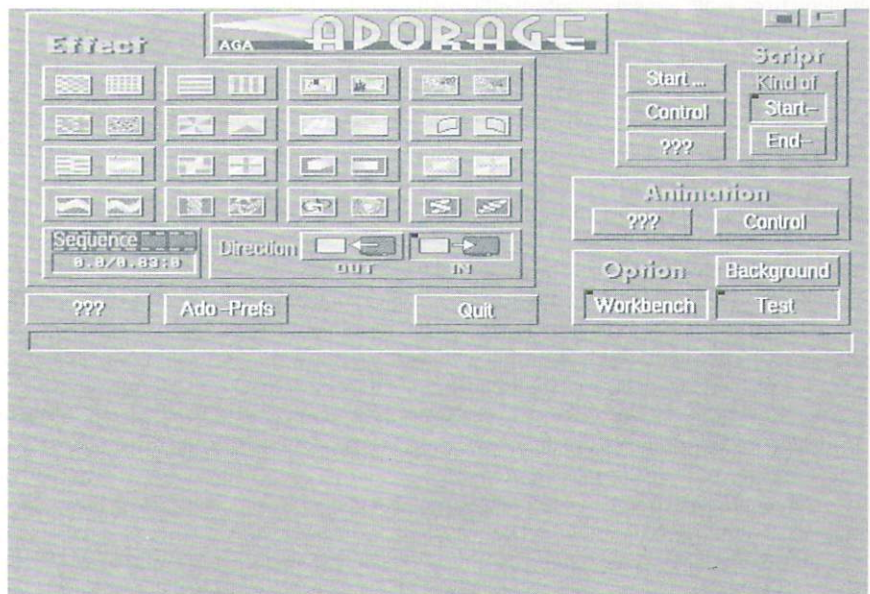


Figure 1. The complexities of the Adorage interface.

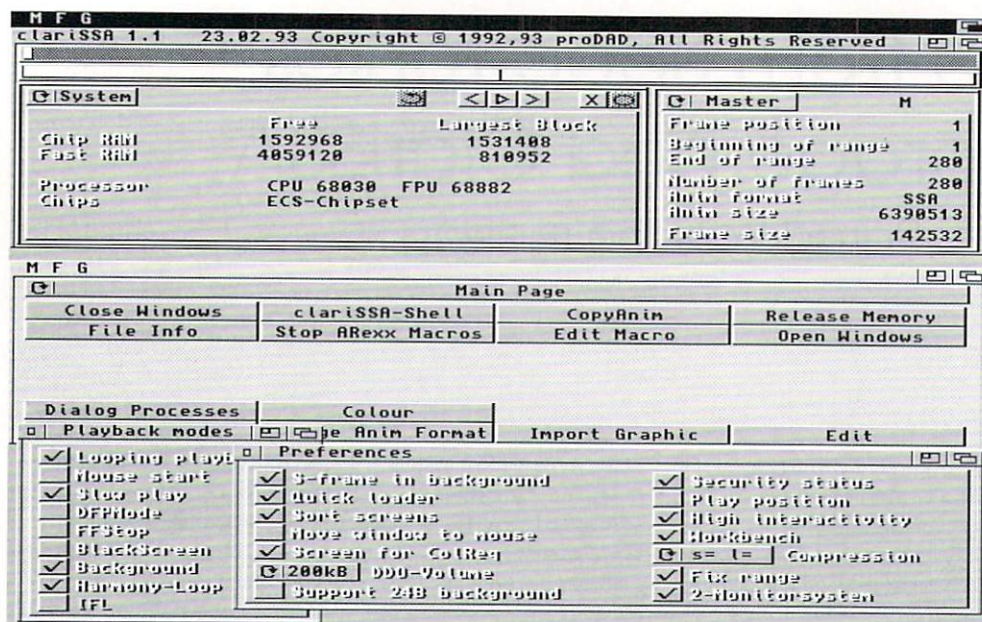


Figure 2. The straight-ahead tools of ClariSSA.

SSA standard are much faster animation playback, especially when each frame represents a large change of data from previous ones, and the fact that SSA file sizes are smaller. Obviously, 256 color animations or EHB ones require more processing, so slower playback results from higher, denser resolutions.

Adorage Conclusions

Too many times, software documentation from non-English speaking countries (when translated by a person in that country who considers themselves as having a command of the English language) reads like a stiff lecture, and seldom is it authored to get the point across in ways that are needed by the English/American videographic audience. The Adorage manual should be rewritten in a manner that will foster learning and creativity, and it should be written in plain English. This manual is severely dysfunctional. You can get to some interesting places in the software by experimentation, but the docs don't help. The manual lacks any attempt at a serious tutorial walk through, and instead reads like a technical bulletin from some removed political office of information. That's all well and good if the interface is intuitive, but it is not.

How should the docs and the software interface be redesigned? In my opinion the documentation should teach you the basics in a clear unobtrusive manner: how to load an animation or image, what you can do to it once it's loaded and how to do it, and how to save it out. Additionally, you should get a clear impression on what your preference choices are. All of this should be enhanced in the documentation with simple graphically enhanced walk-throughs. The interface needs to be revamped from the start, and common traditional terms should replace the arcane terms used at present. The effects icons are fairly well done, but the quantity of the hierarchal and confusingly distributed buttons is enough to keep you at arms length from creative efforts you might otherwise pursue. Software with a great interface needs less documentation. This software needs much more documentation (and docs of a clearer more precise quality) than it presently has.

Adorage needs to give the user more tutorial animation samples. It offers one sample animation which is poorly designed, though it does display some interesting effects. By the way, just

how do you tell this software to display animations in NTSC? I'm sure there's a way, but it remains unclear and hidden. The actual effects and wipes are nicely conceived, but you've got to do too much work to apply them. To be adored, Adorage needs major reworking in the shop. It might be OK to play with at this point, but I can't recommend it for any serious video work.

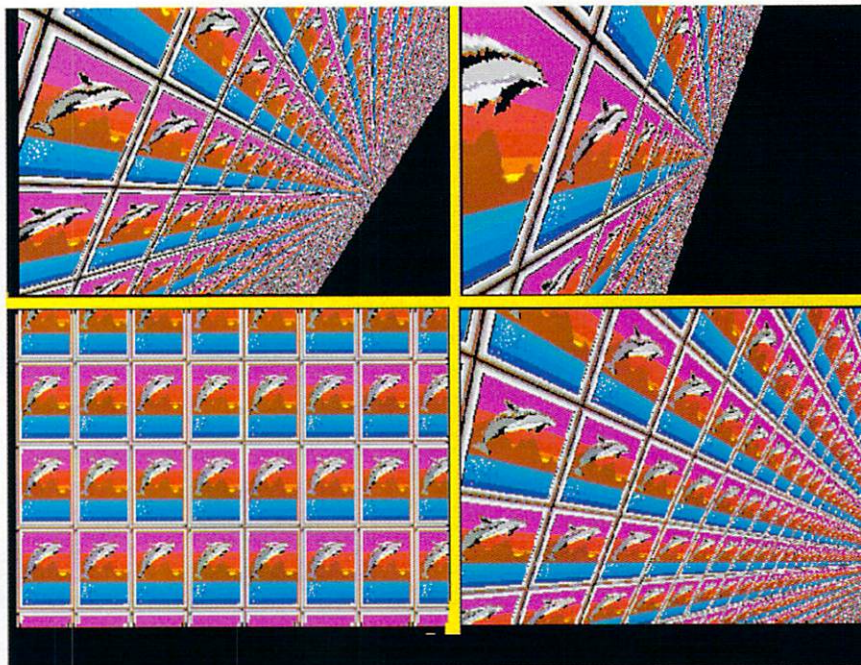
ClariSSA

It looks to me as if this manual was rewritten for the U.S. audience. It certainly is clearer and more friendly than the Adorage docs, and because of this, ClariSSA's techniques for creating results are fostered and enhanced. ClariSSA is the main engine of much of the ProDAD product line, as it generates the central animation format files other ProDAD products use: SSA's (Super Speed Animations).

Why are SSA's interesting, and perhaps even somewhat vital, to the Amiga creative user? Simple. If you are recording animations directly from your computer through a suitable interface or with the aid of a genlock, you will want them to play back at speeds approaching the accepted professional 30 per second rate (or 60 "fields" per second) as closely as possible. Users with more expensive single-frame recording equipment need not worry, because they always get the 30 fps rate. Users without single-framing capacity may put their animations together as glued sequences, also called "assemble editing". For users who work with this method, ClariSSA becomes an important add-on. There are generally two "fields" in one "frame" of video. They are sewn together by what is called the "interlace method". Field rendering produces faster and higher-end animations than frame rendering, and the SSA technique relies upon field rendering just as high-end animation systems do. That's why SSA animations look so much faster and smoother.

ClariSSA is an animation accelerator in software, applying a new animation file algorithm to image data. This new file format (SSA) is faster and more compressible (smaller file sizes) than its ANIM file counterpart. ClariSSA takes in ANIM5 files or single frame sequences and transforms them into SSA files. These files can be played back with a stand-alone SSA player, or right from

Figure 3. The first of two challenges for ClariSSA. Full overscanned frames of filled perspectives that move extensively from frame to frame. ANIM5 rate: about 6 frames per second. ClariSSA rate: 30 frames a second on an Amiga 3000 Tower.



ClariSSA itself. SSA does not demand palette matching either, so two disparate animations can be combined into one fast playing result. ClariSSA is also ARExx compatible, opening it up as an accessory to other art and animation software. Other functions used by ClariSSA are called DDO and DMO, and stand for "Dynamic Disk Operation" and "Dynamic Memory Operation" respectively. What each of these processes results in is virtual memory so that a system uses its storage capacity for animations more effectively, and the quick purging of unneeded memory. What this means to a user is less RAM to play back large animations, and less space needed to store them. ClariSSA is also designed to be kinder to CHIP RAM needs.

A Walk Through

The first thing to do is to load an ANIM5 animation that you have already completed. The process follows the standard methods. When loaded, all of the pertinent file data that the animation contains is displayed. You are then asked to load the animation into "Master", Source A, B, C, or D". "Master" holds the final SSA animation data. Sources A to D are the targets for ANIM5 imports. You can guess that separate ANIM5 files (up to 4) can be combined into one SSA animation. A slider appears above the Source Requester you dump your animation into that allows you to step through the animation for preview frame by frame. To re-record the ANIM5 to an SSA format, you simply hit a record button and wait a few seconds while the frames are processed. As an example of file compression comparisons, my "dolphin animation" whose frames are shown in Figure 3 (notice the extensive frame to frame differences) weighed in at 3,128,058 bytes as an ANIM5 file, compared to a lesser 2,097,288 bytes as an SSA file. And let me tell you, where the playback speed of the ANIM5 sequence was about 2 frames a second, I clocked the SSA animation at about 25 frames a second!

There is a special requester, Playback Modes, that allows you to tweak various settings for animation playback. Selecting "Looping" plays the animation over and over from the start. "Mouse Start" allows you to delay the playback until the Left-Mouse is clicked. A special "Slow" setting, believe it or not, can

actually help in the playback, because sometimes the animation plays back so fast that you may want to slow it down. I would prefer a variable slider here to a simple toggle, though I realize that to slow the animation down too much is not good as you will then see the "half frames" (fields).. DFP Mode toggled on will increase the speed of playback (which you will seldom want to do!). FFStop makes the pause frame interlaced, and

By the way, just in case you think that the translation from IFF ANIMs to SSAs might be time consuming, let me assure you it is anything but. The translation takes place at about three to five frames a second by my estimation. There is also a special pop-up requester that allows you to translate any loaded animation according to new quantity of colors or new resolution formats. It'll do anything your machine supports, aside from 24-bit (this includes HAM and SuperHiRes). There is a separate module that translates any DCTV animation into a 256 color version for AGA users (what a great idea, especially when you play the 256 color animation back at SSA speeds... and store it that way!). ClariSSA offers three selectable compression ratios. The first gives equal priority to both file size and the playback speed. A second sacrifices a bit of file size for faster speed (which I doubt that you'll ever need), while the third does the opposite. The third is used when animations look jumpy in arts, as when you have a too horizontally linear unitary background. A separate monitor centering function is also included.

Do you own the V-Lab video digitizer? If so, you may have yet another reason to purchase ClariSSA. The program allows you to automatically grab video frames as the V-Lab processes them, building an automatic animation file. It can also incorporate already processed V-Lab sequenced animation files. I have a V-Lab external unit and tested this out to my ultimate satisfaction.

Color Effects

There is a requester that deals with applying special color effects to SSA animations. With it you can add color cycling in chosen ranges, color "flashing", add variable color fades, re-mix the palette, add "color chaos", strobe the animation, and more. This is usually what you buy high-end hardware to do, and ClariSSA is

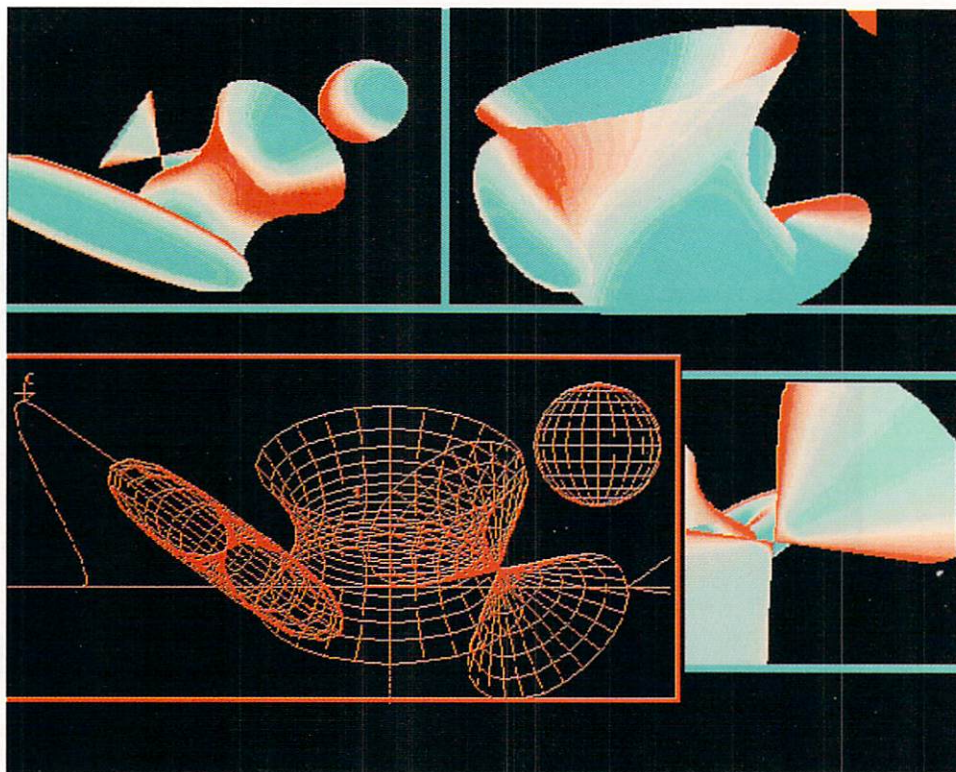


Figure 4. Challenge number two. A 16 color Hi-Res overscanned fly through of a collection of objects (rendered in Aladdin-4D). Lots of screen changes. ANIM5 rate: 4 frames a second. ClariSSA rate: 30 frames a second. I also tested massive DCTV animation files and got the same welcome results each time, with the exceptions and cautions mentioned in the article.

able to do it quickly in software. Obviously, you don't want to do this to a DCTV file, because the data lines that are hidden on the top and to the left of the displayed frames will be adversely effected. Normal Amiga register resolutions (not HAMs) will all display just fine.

Single Frame Sources

ClariSSA will allow you to add single frames in a special process. It can then translate these into the SSA format.

DCTV animators are going to love this software. No more will you have to work in DCTV 3 bitplane mode (8 colors to the Amiga), but you can now plan to work in full 4 bitplane mode, leading to richer colors and more apparent resolution. There is one main drawback, be careful not to have large areas of non-moving images in the animations. That's because field rendering produces a shimmer in static imagery, especially when the image contains a lot of horizontal lines (like the mortar in a brick wall). Now listen carefully for the storage facts concerning DCTV animations. I loaded three separate DCTV animations: 2,097,420, plus 2,642,916 plus 2,472,736 bytes. I combined all of them into one SSA animation that ran at a real 30fps speed. The total size of the SSA animation was a mere 4,284,231 bytes! That's a storage savings of almost 50%, and that represents a lot of disk space available for other stuff! Now again, you won't want all your animations to be SSA's, especially those that have static backgrounds that can flicker. But what about those huge flybys, where the camera is making everything in every frame change, and the background is either a single color or it too is moving? You should be able to get two much needed assets in that case—a tremendous savings of space and a tremendous upgrade in speed. At the moment, ClariSSA doesn't allow for ping-ponging an animation, and playing it in reverse is also not implemented. Otherwise, though, this simple little disk of software can save you thousands of dollars when your client wants a speedy result and you can't afford single-framing technology.

And now for the chocolate pudding. ClariSSA couldn't care less about the resolution or the palette that your animations are in when it combines them into one seamless SSA whole. That's right. And get this, I combined a regular 16 color high-res animation and a DCTV 8 color animation. Result. One continuous animation that played back at 30fps without any distinguishing boundaries between these two very different formats. Do not attempt this in other animation editors, as the results will be chaos. This software will probably get my vote as the most important all-around animation utility to hit the market in 1994.

Conclusion of conclusions

I am only one person with one opinion, and I would hate to think that what I alone tell you might cause you to either purchase or avoid purchasing any product I look at. That being said, however, I must say that I regard Adorage as a failure and ClariSSA as a tremendous success. Perhaps the next version of Adorage will bring it closer to the level of its beautiful sister ClariSSA. How can one company cover both ends of the quality spectrum? I don't know, but given the fact that even developers are human and subject to the same conditions that we all face, I guess it's no great surprise. Adorage, no. ClariSSA, YES!

•AC•

Adorage
Inquiry #201

ClariSSA
Inquiry #202

Spectronics International, USA, Inc.
36 East Main Street #3,
Champaign, IL 61820
(217) 352-0061
FAX (217) 352-0063

EMPLANT

The World's First Multi-Platform Emulation System!



Image Rendered with EMLANT running KPT Bryce! ©1994 By Jim Drew

Macintosh® Emulation Module

The Macintosh emulation module is a 'generic' Macintosh with the speed of the emulation depending on the processor your Amiga is using. An A3000 is equivalent to a MAC IIci. An A4000 is equivalent to a Quadra 900. Support for up to 16 colors is provided for non-AGA machines. A4000 owners can use a full 256 colors! Up to 24 bit (16 million+) colors is supported using 3rd party video boards such as: Picasso II, EGS-Spectrum, Vivid-24, Rainbow II, Rainbow III, Visiona, Merlin, Retina, Retina Z3, Piccolo, EGS110/24, and OpalVision! Built in multiple file transfer allows for quick, easy transfers between the Amiga and MAC emulation.

E586DXSM Emulation Module

We are now in the final testing stage! We have added the next generation CPU instruction set! The E586DX emulation module offers a high speed 586DX (FPU, MMU, and new instruction set) emulation with complete low-level architecture support, giving you the ability to run DOS, OS/2, NT, Windows 3.x, and even Chicago! Support for MDA, CGA, EGA, VGA, SVGA video modes, sound, joysticks, floppy drives, hard drives, extended memory, and more!

Utilities Unlimited International, Inc.

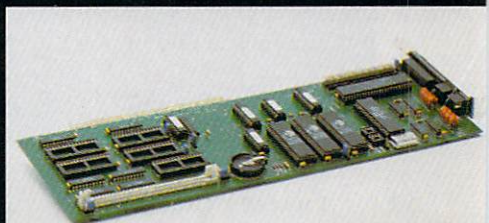
790 N. Lake Havasu Avenue #16
Lake Havasu City, AZ 86403 U.S.A.
(602) 680-9004 24hr order line
(602) 453-6407 24hr Fax line
(602) 680-9234 Technical support dept.
(602) 453-9767 24hr BBS (2400-14.4K)
(602) 453-3909 24hr BBS (14.4K-28.8K)

Four different versions of EMLANT are available, ranging in price from \$279.95 to \$399.95

All emulation modules require an Amiga with Zorro II slots, and a 68020 (or later) CPU.

DEALER INQUIRES WELCOME!

Circle 114 on Reader Service card.



Pixel3D-Pro Version 2

Reviewed by R. Shamms Mortier

Over the years since its inception, Scott Thede (Axiom's CEO) has always wanted this software to do more, and to be very distinguishable from its competition. It's not only what the file format looks like when it is exported as different from its imported character, but what happens in between that makes this software unique. That's where this package differs from any other, so that at this point it has no competition at all.

Pixel-3D Pro 2.0 can import (read) nineteen different 3D object file types: 3D Pro, 3D Studio ASCII and Binary, AutoCAD DXF, IFF Bitmaps, Caligari, Draw 4D and Pro, Imagine, LightWave Objects and Scenes, PostScript ASCII and EPS, Scenery Animator DEMs, Sculpt 3D and 4D, Turbo Silver, VideoScape ASCII and Binary, VistaPro DEMs, and Wavefront. Absent is the long included support for PageRender-3D, a long-dead Amiga package.

It can output to (write) fifteen different formats: LightWave Object and Scene, Imagine, Turbo Silver, Sculpt 3D/4D, Caligari, Draw 4D/Pro, Aladdin (with the VideoScape ASCII option), 3D Pro, DXF AutoCAD, 3D Studio, Wavefront, VideoScape ASCII and Binary, and Digital Arts. My tests included importing from DXF, IFF Bitmaps, Caligari, Draw 4D Pro, LightWave, PostScript, Scenery Animator, Imagine and VideoScape. The Real-3D format is supported through the DXF file alternative.

This software can accomplish a lot more than mere file conversion. It has lightning fast drawing/rendering routines, most of them much faster as far as previewing 3D objects than any Amiga 3D rendering software. Pixel3D-Pro 2 allows you to render

your objects in your choice of the following: Wireframe, "Hidden" (Wireframe with hidden lines), Flat (filled shaded polys), and ZBuffer 1 & 2 ("1" is a bit less accurate than "2"). You can toggle an objects color on or off (except for ZBuffer options). How much actual color you see on your display depends on the type of Amiga you have. If you have an AGA machine (A4000 or A1200), objects are rendered in 256 colors or shades of gray.

Editing 3D Objects

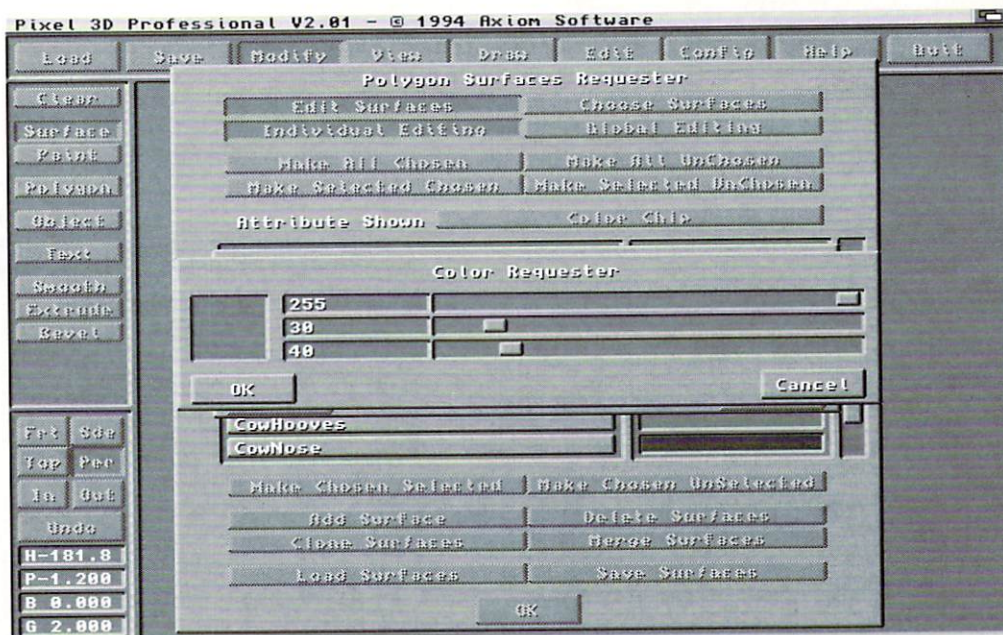
You can also "double" the polygons contained in an object, while "points" shows all editable vertices. "Grid" toggles a wireframe only grid display (like the ground grid in LightWave, Caligari, and Aladdin 4D). Most rendering/animation packages offer loads of editing tools so that objects can be altered almost infinitely. Pixel-3D Pro 2.0 gives you a selection of its own basic editing tools, so that you may choose to alter some aspects of the object before you export it.

Basic editing consists of either deleting or moving selected points on the object. Moves are accomplished by selecting points and dragging them via the mouse in the desired direction, with either a single or a group of points selected. Selecting points for editing can be done by either individual point-click methods or by using a "lasso" to encircle any number. I was able to easily transform a good number of 3D objects in this fashion, saving them out as new objects.



Figure 1. Pixel-3D 2.0's Text capabilities show in this graphic. L to R, T to B: ZBuffer2, Flat, Hidden, and Wireframe renders.

Figure 2. The Surfaces Requester is a suggested first step when coloring in 3D object elements.



The "Modify" Sub-menus:

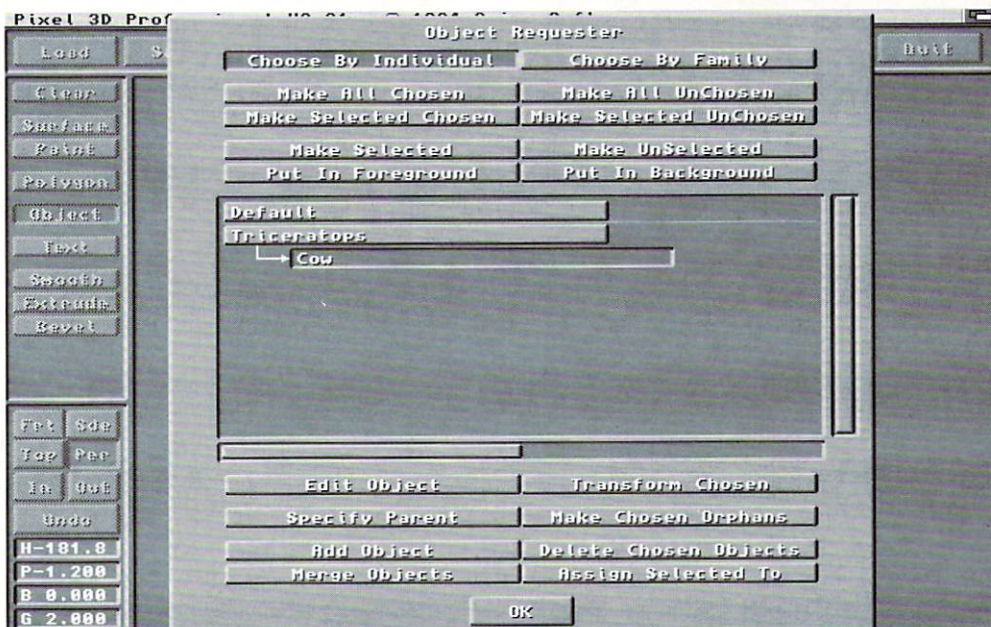
Smoothing

"Smoothing" makes the edges of your 3D objects less jagged, which is especially desirable when you import and expect to extrude bit-mapped fonts. Expect to spend a fair amount of time exploring what the best parameters are for each separate Bitmap that you want to smooth out using the Detail/Segment/and Horizontal-Vertical Elimination numerical input option. There are two additional spline fitting operations: coverage and vertice spacing. If you want to smooth out a lot of Bitmaps using these tools, I suggest you get ready for some long sessions. I recommend staying with the default settings until you get the hang of what you're doing. The setting that I found most useful for a typical jaggie bitmap font (a serif typeface at a thirty point size) was to set Detail Elimination at 60%, Segment Elimination at 25%, and Horiz/Vert Elimination at 20%. I kept the Spline Fitting off in most cases. All bitmaps differ, so you'll have to tweak these settings for your specific project.

Extrude

Extrude operations ask one major question: how deep do you want the extrusion to be. Most any input will produce a 3D result (though the system balked when I attempted the number 999,999,999,999). Standard numbers lie between 1 and 10,000, with about 100 being the most common. You can choose to extrude the single selected object or all on-screen objects at once (a useful feature for multiple lines of text). Extrusion is used for 2D Bitmaps or Bitmap fonts as it gives depth to flat graphics, and animations of a virtual 3D world make flat objects look out of place. It took me about thirty seconds to create a simple 16 color graphic in DPaint, import it into Pixel3D-Pro 2 and develop an extruded 3D object from it. Pixel3D-Pro 2 extrudes objects much faster than any of the 3D packages that I might choose to use to accomplish the same thing.

Figure 3. In the Object Requester, we can see how easy it is to develop hierarchal trees that place all objects in relationship.



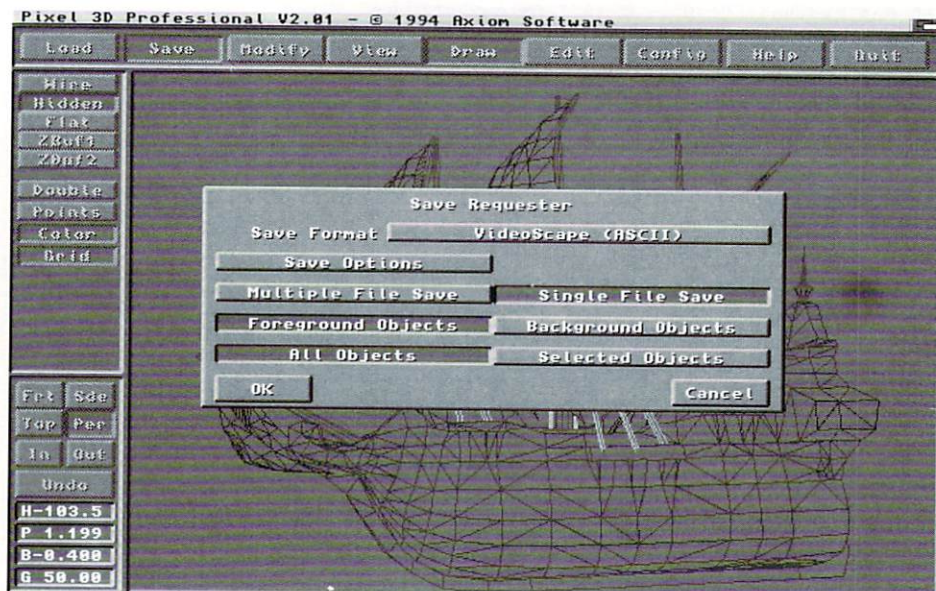


Figure 4. It's easy to select the object file format you want to save to.

Bevel

This is an operation meant for 3D fonts and logos that gives them a finished professional beveled edge look. Unique to Pixel3D-Pro 2 is the ability to apply "router bit" edges, constructed from your own saved-out graphic "router bits" (saved-out brushes of your own making). Very fancy edges can be created with a little experimentation.

3D Polygon Painting ?!

This is one of the newest buzz items to hit the computer graphics workplace, offered by such high end packages as Caligari Corporation's TrueSpace for Windows. After selecting polygons for painting, you turn them to whatever color is desirable. If the color you want isn't already in the object, you can add any number of colors by bringing up the Surfaces requester and adding them there. Pixel-3D Pro 2.0's actual 3D painting process is addressed by a 3D Painting Requester. The same requester allows you to see which colored polys are "smoothed" and the quantity of their appearance in the targeted object. 3D Polygon painting works best on large flat surfaces (like the front of letters), and is a little harder to manage on perspective curved sides.

Text

Most users will want to use this software to manipulate and extrude text strings and bitmap logos. First design your logos in a high-end vector drawing package like Soft Logik's Art Expression, or import it from a previously scanned image. Pixel-3D Pro 2.0's Text Requester is divided into two sections, one for PostScript fonts and the other for standard Amiga bitmap fonts. Bitmapped fonts require a selected size as well. I always choose the largest Bitmap size to minimize jaggies, since the curved sections will have more points to work with. PostScript fonts always produce better 3D images, and should be used whenever possible. I had great success with both Toaster fonts and ones that I found on the Micro R & D CD-ROM collection. With this option, you are no longer limited to a small selection of 3D font strings for your animations.

You'll have to reconfigure Adobe Illustrator PostScript imports. One solution is to import Adobe files into Soft Logik's Art Expression, then save them out as standard PostScript files. From there, Pixel-3D Pro 2.0 can import them. If you colorize them in Art Expression, Pixel-3D Pro 2.0 will also bring in the color (which will

show on-screen on AGA machines). I also found that Pixel-3D Pro 2.0 doesn't like importing PostScript over the network from a CD-ROM. The files should be copied to RAM on the machine you're working on first.

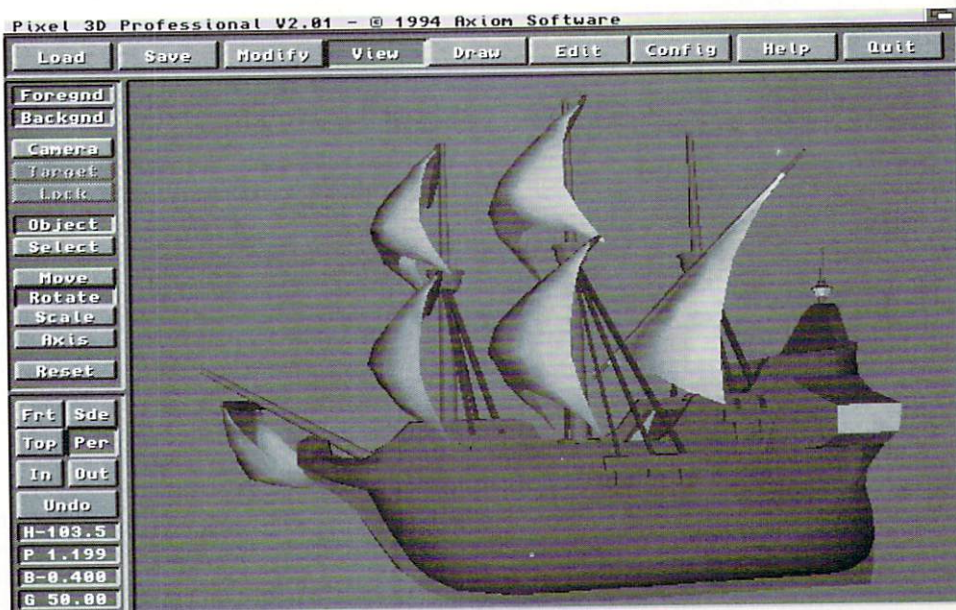
3D Object Data Adjustment

In addition to viewing all relevant data concerning the selected object, you can interactively modify it. Redundant vertices can be deleted, and a "Polygon Reduction" tool deletes polygons that are co-planar (on the same plane), which is best when saving objects to LightWave (though not suggested if the target format is Imagine). You can also alter the maximum number of sides that a polygon has (some rendering packages don't care how many sides a to-be-rendered polygon contains, while others demand triangles). "Divide Polygons" divides all polys into triangles, a necessity when exacting rendering is to occur in most renderers. You can also set this operation to however many sides you desire for the polys. Many renderers expect the polys to be ordered in a clockwise fashion, otherwise incomplete rendering may occur (I've always found this to be especially true for VideoScape objects that are ported to other formats). "Flip Polys" will make a valiant attempt to perform this operation for you. Sometimes it's best to "Double" the polys first, another process that Pixel-3D Pro 2.0 can accomplish. "Apply Surface" allows you to globally change any or all of the objects surfaces as to color or smoothing attributes, and is a great help when you decide to apply alternate surfaces to an object in LightWave.

My Personal 3.0 Desires

I would like to have the ability to move requesters around, to drag them to parts of the screen that don't obstruct my view of the object. Pixel-3D Pro 2.0 assumes that your Bitmapped fonts are in a drawer called "Fonts", and you cannot change the path of the drawer name (except by a complicated series of assign statements in the CLI), and because I have several Font drawers (like many of you), it would be useful to be able to change bitmap font paths. The manual needs to have some visuals that depict what happens when the Smoothing operator is used on a bitmap. This would be better than pages of words. The docs should also have an index added.

Figure 5. Here's a 256 color rendering of a LightWave 3D object. It can be turned on any XYZ axis and resized as well.



Eventually, I'd like to see everything that gets imported come in as a Bezier curve, so absolutely no jaggies appear in any output once adjustments take place (perhaps this could be done by emulating Aladdin-4D's excellent "SpoToPol" tool, which turns a spline back into a poly curve or vice-versa for extruding and lathing). Lathing, turning a selected poly object on a selected axis, is another thing that I would like to see re-added in the software. This capability was present in the last version. I would also like to have the ability to copy (clone) and paste selected objects from a menu item.

Conclusions

From the looks of the interface, Pixel-3D Pro 2.0 has been redesigned with the LightWave user in mind, right down to the familiar 3D ground grid and object/camera moves. The software requires Workbench 2.x or 3.0 in addition to an accelerator with a math coprocessor and though it'll work with only 512K of CHIP RAM, more RAM of every kind is much better (and required for

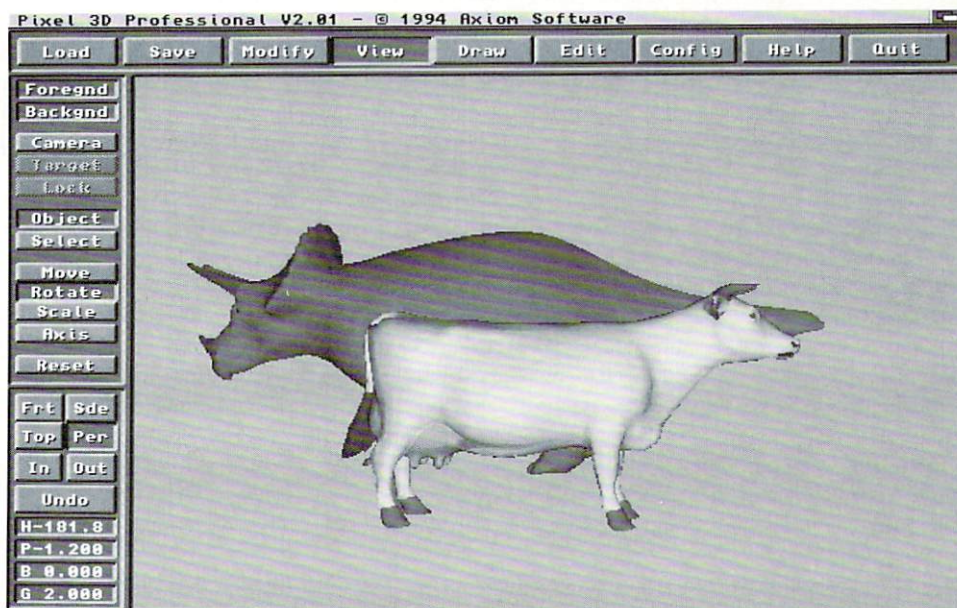
extensive operations). All of my tests were done on an Amiga 4000 with 18MB of RAM (2MBs of CHIP RAM).

For a software package to be called an "upgrade", it has to differ significantly from its preceding version. Otherwise the term to be used is "revision". Is Pixel 3D Pro 2.0 really an upgrade? I consider the 2.0 version of this software to be not only an upgrade, but a very significant one. Axiom is committed to adding even more features when the Amiga is rolling again.

•AC•

Pixel-3D Pro 2.0
MSLP: \$299.99;
\$99.99 from Pixel-3D Pro previous version;
\$125.00 from earlier versions.
Axiom Software
1668 East Cliff Road
Burnsville, MN 55337
(612) 894-0596
Inquiry #205

Figure 6. Even very polygon intensive multiple objects like this Triceratops and Cow can appear simultaneously in 256 colors on the Pixel-3D Pro 2.0 editing screen.



Distant Suns v5.0

by Rob Hays

News items indicate that this summer's celestial fireworks on Jupiter have spurred sales of telescopes. Whether you are still considering joining this fast-growing hobby, or you are an advanced amateur astronomer, Distant Suns is a program you need on your Amiga's hard drive.

Recently updated to version 5.0, Distant Suns from Virtual Reality Laboratories, is an Amiga classic that just keeps getting better. This latest version represents a complete re-write of the program code, and is the smoothest, most feature packed version yet.

If you have never heard of Distant Suns (DS), the premise is disarmingly simple. Put dots of light on the monitor screen so that it matches what you would see in the actual sky. The reality is a program that has grown to require 4 megabytes of free hard disk space, a minimum of 2 megabytes of memory, and Workbench 2.04 or higher.

Because the stars and planets will appear in different places depending on where on Earth you are observing from, DS has always included provisions for entering the longitude and latitude of your location. DS5 enhances this with the addition of a scrolling list of more than 100 major cities around the world. If you don't know the longitude and latitude of your home, choosing the nearest major city will be good enough for casual observation. If you need more precise information, check with your local library.

The date also determines what is visible, and while DS reads the current date and time from your system, you certainly are not limited to what is visible today. Any date between 4713 B.C. and 9999 A.D. is fair game for observations, with one caveat. The further away you are from the present date, the less accurate calculations of positions are likely to be. As a practical matter this would have little consequence, even if you could take your telescope into the far past or future.

Once you have chosen a date and time to view, you can control the passage of time by making it stand still, move forward or backward, or run in real-time. Further controls allow you to have each screen update reflect any interval from one minute to 100 years. Used with the look down feature, you can watch the planets whiz around the sun from a vantage point above the sun.

You can choose to view the sky from earth in either of two modes. Planetarium mode provides a view unobstructed by the Earth itself, or Local mode, which actually places a silhouette of hills and on the screen for a more natural view. There are so many options available that you could spend many hours just exploring different ways to look at things. For example, the left mouse button can be set to perform any of three different actions when clicked. Center the view on the point where the mouse was clicked, zoom into the point clicked, or identify the point. The field of view presented on your monitor screen can range from 180 degrees, to an ultra-narrow .01 degree.

Moving about the virtual sky can be accomplished in several

ways. You can use the mouse in centering mode, or you could select a quick move direction from a menu. Alternately, you may choose an object by name from a scrolling list, enter a specific location coordinate, or use the motion control arrows that are part of the control panel. This is a small window that also gives quick access to the field of view setting, and current time and date settings. Also available, and new to 5.0, is a tool box window. This gives instant access to 20 of the most frequently used commands.

If you have the mouse set to identify, and click on an anonymous point of light, a small data window will pop up. This provides information ranging from astronomical data such as position, magnitude, distance, the next rise and set times for viewing, and folklore. If the object is one of several that images are included for, this box also gives you the chance to view those images. These are full screen 16 color images from either NASA space probes or ground-based telescopes. Owners of AGA machines get 256 color images.

Also new to 5.0 is the ability to render planetary bodies as shaded spheres. A requester allows you to pick any of the nine planets, the sun, or moon, then choose any of eight positions relative to your object to view from. Combining this feature with the built-in animation functions would allow you to produce your own fly-by animated tour of the solar system. While the detail of these renderings is limited to solid colors, it is more interesting than simple points of light.

The backyard astronomer often wants a quick overview of what will be visible that evening. While books and magazines can provide this information, Distant Suns can do it quicker and more informatively. Picking the What's up menu item provides a choice of three different displays. A planet chart that shows the relative positions of the planets currently visible from your location, a Rise/set plot that is a bar-graph chart which shows the planetary visibility over the next 24 hour period, as well as sunrise and sunset times, and the current time, or the Summary selection. This lists the solar system objects, with their location information, and highlights the currently visible objects. Also shown here is the current moon phase and upcoming meteor showers. A Lunar Phase chart is also available to quickly judge how much moonlight will be competing with the fainter starlight.

The supplied databases contain more than 8000 stars, and 100 nebulae. Virtual Reality Laboratories has additional data sets available if you desire. Best of all, you can update this information yourself, entering orbital parameters for asteroids or comets as they are discovered. You can even customize the data used for the ground silhouette to more closely resemble your location.

Distant Suns Version 5.0 from Virtual Reality Laboratories, is an Amiga classic that just keeps getting better. This latest version represents a complete re-write of the program code, and is the smoothest, most feature packed version yet. The supplied databases contain more than 8000 stars, and 100 nebulae. You can control the passage of time by making it stand still, move forward or backward, or run in real-time. Further controls allow you to have each screen update reflect any interval from one minute to 100 years. Used with the look down feature, you can watch the planets whiz around the sun from a vantage point above the sun.



The 128 page spiral-bound manual contains information ranging from the history of astronomical observations to technical details of the program. There is even a section about buying a telescope. Scattered throughout are tutorials that familiarize the user with the features of the program, while also providing eye-opening lessons. For example, one of the tutorials demonstrates an event in 1989, where an asteroid made one of the closest known approaches to earth. On March 22, 1989 this asteroid passed within 400,000 miles of earth, and because of its direction of travel, no one knew of its approach until after it had passed us.

Distant Suns 5.0 is supplied on 5 disks, which contain versions of the program suitable for systems with or without math co-processors. The Commodore Installer will evaluate your system and install the correct version, as well as the support files and

images. The program is not copy protected. DS supports ARexx for control of the program features externally with more than 40 different commands supported, and sample scripts are included.

Don't stare up at the sky any longer wondering which point of light is a star and which is Jupiter. Distant Suns is ready to start you on a lifetime of sky viewing enjoyment.

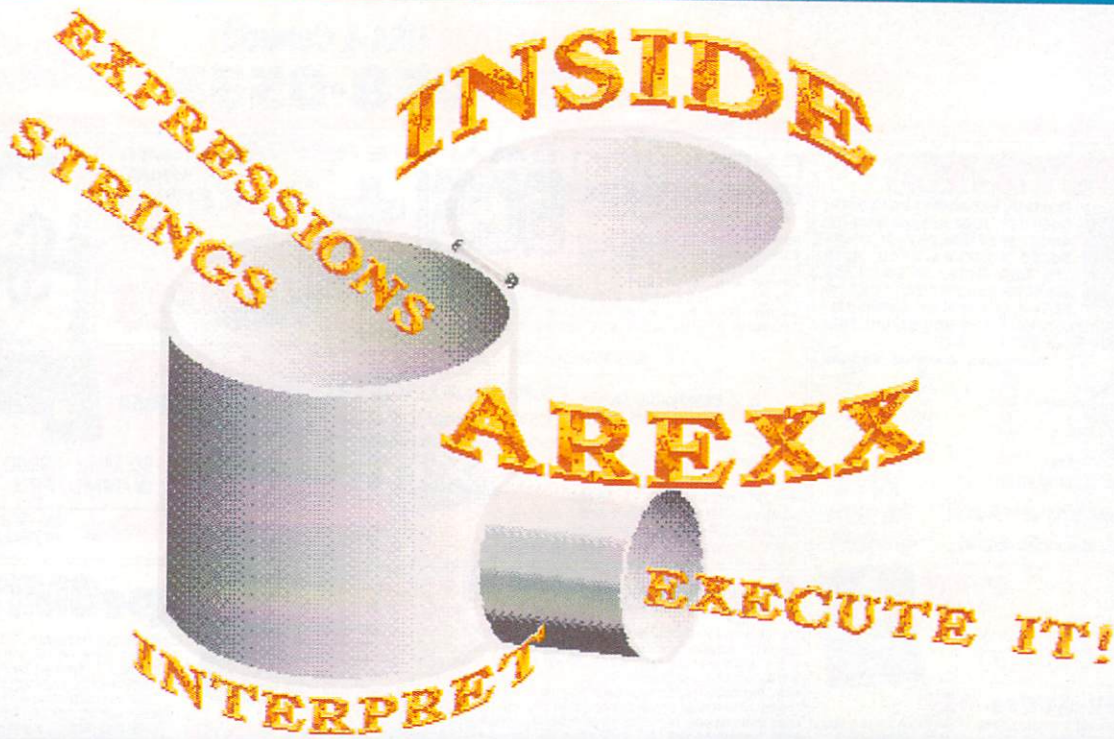
•AC•

Distant Suns V5
Virtual Reality Laboratories
2341 Ganador Court
San Luis Obispo, CA 93401
(805) 545 8515
(800) 829 VRLI
FAX (805) 781 2259
Inquiry #206

CUSTOMER SERVICE (412) 962-0533
CUSTOMER SERVICE HOURS
10 a.m. - 5 p.m. Monday thru Friday

LOST VIKINGS	3
MICRO MACHINES	3
MORTAL KOMBAT	2
NAUGHTY ONES	3
PATRICIAN	3
PERIPHERON	3
PINBALL DREAMS-FANTASY COMBO	4
PUGST	3
REACH FOR THE SKIES	3
RISKY WOODS	1
ROBINSON'S REQUIEM	3
SECOND SAMURAI	3
SENSIBLE SOCCER	3
SETTLERS	3
SIM CITY CLASSIC	3
SIM EARTH BUDGET	3
SIM LIFE	3
SIMMON THE SORCEROR	3
SKID MARKS	3
SOCCER KID	3
SPACE HUL	2
SPORTS TOP TEN	3
STAR LORD	2
STARBUST	3
STEEL FIGHTER 2	2
STRIKES AND SPARES	3
STRIP POKER 3	3
STRIP POKER DATA 1	1
STRIP POKER DATA 2	1
STRIP POKER DATA 3	1
STRIP POKER DATA 4	1
STRIP POKER DATA 5	1
STRIP POKER DATA 6	1
STRIP METHANE BROTHERS	3
TEAM 17	3
TERMINATOR 2	3
THE BLUE & THE GREY	1
TOM LANDRY FOOTBALL DELUXE	2
TORNADO	4
TRIPLE ACTION 3-TITUS FOX	2
TRIPLE ACTION 4-BLUES FOX	2
UFO DEFENSE	4
VAL HALLA	4
WALKER	1
WAR IN THE GULF	1
WHEN TWO WORLDS WAR	4
WINTER OLYMPICS	3

continental us. All orders fully insured. Microns, computers, printers and other heavy items may incur additional charges...call for shipping quote.



The ARexx Interpret Instruction

by Merrill Callaway

This month we look at arguably the most powerful single instruction in ARexx, the INTERPRET instruction. Its efficient or advantageous use requires new thinking about programming, but once you understand how it works, INTERPRET will help you solve some very difficult programming problems, even some that are impossible to solve in all but a few other languages. In a nutshell, INTERPRET allows a program to create its own instructions and then execute them dynamically (during program execution). It is possible, in other words, to run programs whose instructions are not fully determined until run time. Depending upon conditions, the instructions executed by the program can vary or even be constructed on the fly from expressions during execution. First we will look at the most famous REXX program adapted for ARexx.

The ARexxTry.rexx Program

This short but powerful and interesting program is derived from a REXX program, REXXTRY, available on other platforms such as OS/2 and IBM mainframes, and mentioned in most books on REXX. It is a popular learning tool because it allows you to enter ARexx programs interactively, either one instruction at a time or as in-line programs with statements separated by semicolons (;). You

may try out ARexx without writing a program, so it is a great learning/experimenting tool. The heart of the program is the INTERPRET instruction inside a DO FOREVER loop.

The Code

The program starts off displaying two lines telling you to enter an ARexx statement. (Here is where you would enter any valid ARexx statement(s), or simply press [Rtn] to exit the program.) In the next line, we change the prompt with an OPTIONS PROMPT 'ARexx>' statement, so that you will know when you are in the program. A label, restart: is used for an entry point whenever control is to go back to the main program. Next, the error traps SYNTAX and ERROR are enabled as we discussed last month. If you type in a wrong syntax, the program won't bomb, but will give you another chance in the SYNTAX: trap subroutine. Note that the traps are enabled each time the restart label is signalled. This is because error traps need to be re-enabled after each use. In other words they are good for only one use per enable; as we mentioned last month they act exactly like circuit breakers which must be reset after each use.

The ERROR trap is for those of us who use WShell instead of the Amiga Shell. WShell (unlike Amiga Shell) is an ARexx host

application (with ARexx port) and therefore will attempt to pass "commands" it doesn't recognize to the underlying AmigaDOS (ADDRESS COMMAND being the default address for commands from WShell). For example if at the "ARexx>" prompt, you entered "date(d)", then in WShell, the day of the year (suppose it's 205) will be passed to AmigaDOS for attempted execution as a command. An error will be generated. The trap simply prevents an excessive amount of error messages from displaying. In the Amiga Shell, nothing will happen, except another fresh prompt will display. Unfortunately (meaning you must go out and buy it), WShell acts the way a shell is supposed to, and Amiga Shell does not. Remember that ARexxTry simply executes the ARexx statement, so to see the result of a function, output to the Shell, you must enter "say date(d)" (without quotes), and the day of year number, such as 203, would then display.

The DO FOREVER loop is straightforward, letting us enter a statement, which by way of a PARSE PULL instruction is put into a variable, myowncommand. Make sure that this variable is a fairly

The SYNTAX: trap gives you the error message, shows you the offending statement again, and SIGNALs the restart label for another try. The ERROR: trap merely SIGNALs restart before too many error messages display in WShell. This trap has no affect on Amiga Shell performance.

The FUNCTION: label marks a test function which merely displays that the control is in the test function subroutine. You may use this to practice CALLing a function from inside the INTERPRET range to see that control returns satisfactorily.

Let's try some examples to see how ARexxTry works. Start up the program in a Shell, typing in "RX ARexxTry" or simply "ARexxTry" if you use WShell. Now, at the prompt type in this sequence:

```
x = 3
y = 5
a = x + y
say a
```

Its efficient or advantageous use requires new thinking about programming, but once you understand how it works, INTERPRET will help you solve some very difficult programming problems, even some that are impossible to solve in all but a few other languages.

long string and unlikely that you would use it as an assigned variable entered at the prompt. Your test variables should NOT match "myowncommand" used by ARexxTry, or strange results may occur. You may enter one statement, or several in a line separated by semicolons. As we will see shortly the program "remembers" variable values in between loop iterations, so you may also enter a program line by line and see results interactively. The next line checks for a null string and LEAVES the loop if one is entered. This is the way the user exits the program.

The heart of the program is the INTERPRET myowncommand line. ARexx evaluates the expression, which is the line you entered at the prompt, substituting any values that have been established in earlier loop iterations or previously in the same line. It evaluates the expression exactly like any other ARexx expression according to the regular rules (substituting from left to right, function argument values first). Once the expression is evaluated, ARexx constructs a control space and executes the resulting string just as if it were an ARexx program composed of one or more statements. You may insert DO...END loops, SELECT BLOCKS, and even SIGNAL instructions as long as their entire range is contained inside the INTERPRET range. LEAVE or ITERATE must refer to a block contained inside INTERPRET, but CALL may jump outside the INTERPRET block and safely RETURN. Label clauses are not illegal within INTERPRET ranges, but only labels defined in the main source code are searched during a transfer of control. If SIGNAL is used, it immediately terminates the INTERPRET block. BREAK also terminates the processing of INTERPRET statements.

The TRACE OFF instruction is so that if you wish to trace an in-line program, the trace will turn off and not trace ARexxTry itself.

The program should do nothing until you enter "say a" at the prompt. Then it will display "8" before putting up a fresh prompt. It has "remembered" the values of x and y, and made the appropriate substitutions. Try this sequence (note the quotes):

```
a = 'x + y'
x = 1
y = 6
say a
interpret say a
```

What did you learn? You may use INTERPRET itself recursively in this program and see how it evaluates and substitutes values. You should see the string representation of a the first time and 7 when you interpret say a. Try this line at the prompt:

```
cmd='say';var='x';x='Here I am!';say x;interpret 'say x';interpret cmd var
```

You should take note of the three equivalent ways to say "Here I am!". If you try to enter only cmd var at the prompt, if you have WShell, the Amiga speak utility will "speak" the letter x; if you have Amiga Shell, nothing will happen. This shows how ARexx hosts (in this case WShell) will pass commands to the external environment (AmigaDOS) for execution (if possible). Finally test the ability to CALL an external function and return where we left off:

```
a=1; b=2; CALL FUNCTION; SAY 'a+b='a+b;SAY 'FINISHED!'
```

In the next use of INTERPRET, we will see an entire DO loop INTERPRETted by this remarkable ARexx instruction.

BINOCULAR EYES

STIFF TAIL

SLASHING CLAW

A1200 OR A4000
w/HARD DRIVE

STEREO SOUND

256 COLORS

= FOSSIL AGA

ONLY \$24.95

AGES 8 - ADULT

*CASH, CHECK, OR MONEY ORDER MADE PAYABLE TO:
CHRISTOPHER C. MEEKER
RR4 BOX 223 OSWEGO, NY 13126

Circle 115 on Reader Service card.

The ARexxCalc.rexx Expression Calculator

This program is a slight variation on ARexxTry.rexx. It allows you to calculate expressions, not only arithmetical, but strings as well. It PARSEs the input looking for the pattern '=' for assignment clauses. If it is an assignment clause (meaning there is something to the right of the '=', then it INTERPRETs the entire user input line. If there is an '=' but nothing to its right, the program only interprets "SAY" myownexpression the string without the '=' (patterns are removed by PARSE). This way, you can enter a=1; b=2 and then a+b or a+b= and get the result 3. This program is handy to help you evaluate expressions the way ARexx does.

Interpret for Indirect Function Invocations

With INTERPRET, you can write code with syntax that looks very much like an ordinary function call, except that it expands into customized code. Languages like C and PL/1 and assemblers have such a "macro" feature; and the ARexx INTERPRET instruction, mimics this behavior quite easily. The second listing shows ARexxMacro.rexx, a demonstration of how to call a function indirectly by reference. That is, the call passes the name of the function itself, so one syntax can invoke many different functions by reference rather than literally. The problem is this: How can you take some arbitrary (source) array, and apply an arbitrary function to each one of its elements and put each result into its corresponding place in a second (target) array? This problem is discussed in Programming in REXX by Charles Daney, McGraw Hill, 1992, pp 221ff. I have modified his REXX example to work in ARexx. An array assignment function is easy, provided you don't

need to pass the name of the function. For a specific function, you would write code such as:

```
DROP target. /* uninitialized the target array */
DO i=1 TO n /* n is the number of array elements */
  target.i = function(source.i)
END
```

If we wish to name the function at run time or have conditions dictate which function is to be applied, we need to use INTERPRET. To separate the array definitions from the rest of the example, we will construct the array function as a macro (an internal function procedure) called by the main ARexx program. Refer to the listing. First we construct a small array, source.1=A, source.2=2, source.3=C etc. You may of course use any array here. Next, we make a DO FOREVER loop so that we can try out different functions on the array. Three are named, two built-in functions, and one, FUN, interior to our program (which just concatenates XXX on the array element). The point is to demonstrate the structure and syntax of the call. The array assignment function is named "fun2array" and it is called with four arguments: the name of the target and the source arrays, the function name, and finally the number of elements, n. This CALL to fun2array branches to that label and continues.

The MACRO Procedure

Inside our procedure, we need to expose the two stems. Why? Because these must be exposed if an entire array is to be passed to a subroutine. Normally we would expose n as well (left of the array stems), but it is passed explicitly as an argument, so we do not need to. We use the ARG() function to assign the four arguments to more mnemonic variables within the subroutine. (You can also use ARG or PARSE ARG to do the same thing.) We have targ, srce, funct, and num representing the target stem, the source stem, the function name and the number of elements, respectively. Next we use INTERPRET to execute a block of instructions including a DO loop! Note the quotes so that the expression is evaluated properly. Because we exposed the stems, they evaluate properly in this expression. This loop is just an INTERPRETed version of the example code above where a function is applied to each element of an array. Finally the RETURN instruction passes control back to the main program, and the results are displayed. The last code is the test internal function FUN. You should have some ideas by now of how to use INTERPRET for powerful, original programming.

Listings

ARexxTry.rexx

```
/* ARexxTry.rexx */
/* A program to try out ARexx */
/* instructions and functions */

SAY 'Enter ARexx Statements.'
SAY '[Rtn] to quit.'

OPTIONS PROMPT 'ARexx>'

restart:

SIGNAL ON SYNTAX
SIGNAL ON ERROR

DO FOREVER
  PARSE FULL myowncommand
```



```

IF myowncommand='' THEN LEAVE
INTERPRET myowncommand
TRACE OFF
END

EXIT 0

SYNTAX:
SAY 'AREXX error' rc '({ERRORTEXT(RC)}) occurred.'
SAY '====>' myowncommand
SIGNAL restart

ERROR:
SIGNAL restart

FUNCTION:
SAY 'Now in test function'
RETURN

```

AREXXCalc.rexx

```

/* AREXXCalc.rexx */
/* A program to calculate AREXX */
/* expressions. */

SAY 'Enter AREXX Statements.'
SAY '[Rtn] to quit.'

OPTIONS PROMPT 'Expression>'

restart:

SIGNAL ON SYNTAX
SIGNAL ON ERROR

DO FOREVER
  PARSE PULL myowncommand
  IF myowncommand='' THEN LEAVE
  PARSE VAR myowncommand myownexpression '=' valueofexp
  IF valueofexp ~= '' THEN
    INTERPRET myowncommand
  ELSE
    INTERPRET 'SAY' myownexpression
  TRACE OFF
END

EXIT 0

SYNTAX:
SAY 'AREXX error' rc '({ERRORTEXT(RC)}) occurred.'
SAY '====>' myowncommand
SIGNAL restart

ERROR:
SIGNAL restart

FUNCTION:
SAY 'Now in test function'
RETURN

```

AREXXMacro.rexx

```

/* AREXXMacro.rexx */
/*
** Assigns to all elements of one
** array the value of an arbitrary
** function applied to the corresponding
** elements of another array.
**/

source.1=A
source.2=2
source.3=C
source.4=D
source.5=E

DO FOREVER

  SAY 'Enter FUN, DATATYPE or C2X'
  SAY 'to see how function name is passed.'
  SAY '[Rtn] to quit.'

  PULL function
  IF function = '' THEN EXIT 0
  n=5

  CALL fun2array 'target.', 'source.', function, n

```

As told by AC Tech #3.4 and Amiga World Aug. '93...

One Company Still Supports The Amiga!

One Amiga language has stood the test of time. This new package represents the fourth major upgraded release of F-Basic since 1988. Packed with new features, 5.0 is the fastest and fullest yet. The power of C with the friendliness of BASIC. Compatibility with all Amiga platforms through the 4000...compiled assembly object code with incredible execution times... features from all modern languages, an AREXX port, PAL and ECS/AGA chip set support...Free technical support... This is the FAST one you've read so much about!

F-BASIC 5.0™

Supports DOS
1.3, 2.0, 2.1 and 3.0

F-BASIC 5.0™ System \$99.95

Includes Compiler, Linker, Integrated Editor Environment, User's Manual, & Sample Programs Disk.

F-BASIC 5.0™ + SLDB System \$159.95

As above with Complete Source Level Debugger.

Available Only From: DELPHI NOETIC SYSTEMS, INC. (605) 348-0791

P.O. Box 7722 Rapid City, SD 57709-7722

Send Check or Money Order or Write For Info. Call With Credit Card or C.O.D.

Fax (605) 343-4728 Overseas Distributor Inquiries Welcome

```

SAY function('source.1') = target.1
SAY function('source.2') = target.2
SAY function('source.3') = target.3
SAY function('source.4') = target.4
SAY function('source.5') = target.5

END

/* The function applied to array subroutine */
fun2array: PROCEDURE EXPOSE target. source.

stem1 = ARG(1)
stem2 = ARG(2)
funct = ARG(3)
num = ARG(4)

INTERPRET,
'DROP' stem1;',
'DO i=1 TO num;',
  stem1=i' funct'('stem2'i);',
'END'

RETURN

/* A function whose name is to be passed. */
fun: PROCEDURE
ARG char
char=char||XXX
RETURN char

```

•AC•

Please Write to:
Merrill Callaway
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

PD UP DATE

BY HENNING VAHLENKAMP

A close look at utilities to edit your Amiga's memory or clean your floppy drives, plus three games from shareware authors.

Starting this month, PD Update will list file sizes in addition to all the other usual program information. This is an important consideration with larger files, since costs can accumulate quickly when downloading them with slower modems.

The programs mentioned here are usually obtained from Aminet (ftp.wustl.edu:pub/aminet) or FUNET (ftp.funet.fi/pub/amiga) on the Internet. They also should be available via various other sources such as online services (Portal, Delphi, etc.) or BBSs. Some of them eventually appear in the Fred Fish Collection too. Unless otherwise noted, they work with all Amigas and 1.3+.

Amiga Boulder Dash 1.1909 (donationware, \$20; 2.04+)

by Jeff Bevis

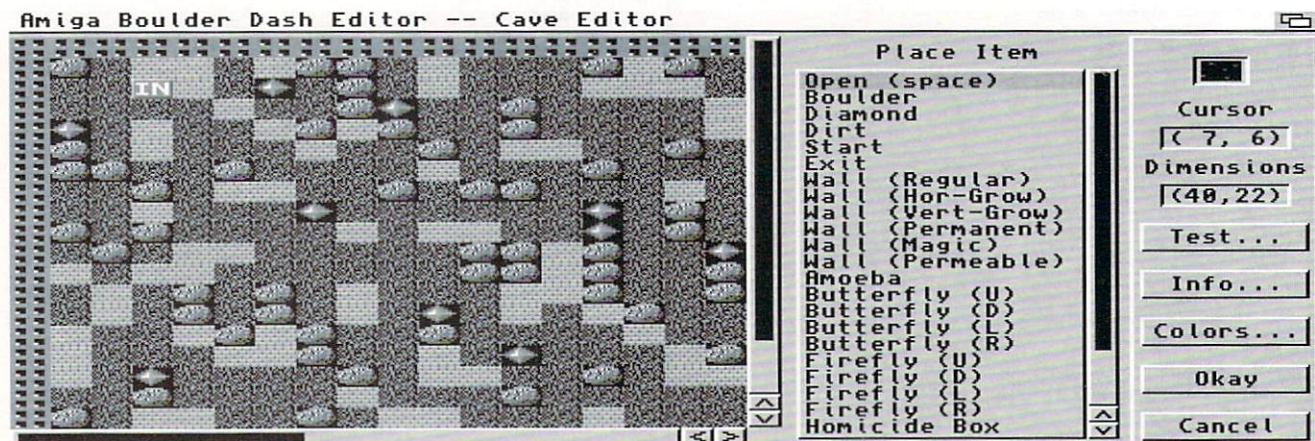
Aminet: /game/misc/abdash11909.lha (261K)

Amiga Boulder Dash brings another classic game into the modern age. In Amiga Boulder Dash, you must collect a specified number of diamonds from each cave before moving on to the next. Hazards in the 2D caves include boulders (hence the name), butterflies, fireflies, and expanding amoebas among others. The

game is not as shallow as it sounds, as you really have to be careful; your movements can easily produce chain reaction consequences. Also, you'll often need to use the hazards to your advantage. Convenient cave codes prevent the frustration of starting from the beginning every time you play.

If you get tired of the 79 caves supplied in three sets, you can make your own (or modify existing ones) with the integrated cave editor. This wonderful, OS-compliant utility is clearly one of the easiest, most useful level editors ever to grace a freely distributable game. It gives you an enormous amount of control over level creation, even allowing you to test caves during development.

The audiovisual aspects are both faithful to the original and improved for the Amiga, although there are no AGA enhancements. While the game should run on all 1MB 2.04+ Amigas, a hard disk and faster CPU make it much more enjoyable. System friendliness is another one of ABD's strong points. The only problem I found was that the keyboard functions (pause, quit, etc.) sometimes don't work. I'm surprised something so obvious escaped correction; ABD hasn't been updated in well over a year. Anyway, it doesn't spoil this otherwise superior Boulder Dash clone.



In Amiga Boulder Dash, if you get tired of the 79 caves supplied in three sets, you can make your own (or modify existing ones) with the integrated cave editor.

AZap 2.20 (2.04+)

by Denis Gounelle

Aminet: /disk/moni/AZap_v220.lha (63K)

One of the latest binary editors for the Amiga, AZap allows you to manipulate files, memory, and disk devices. For each item to be edited, AZap opens a window displaying a block of up to 512 bytes in both hexadecimal and ASCII formats, and the number of windows is limited only by free memory. A VCR-style icon panel complete with keyboard shortcuts makes moving among blocks as simple as moving within a block.

AZap also includes things you might expect in this type of program. You can search for (but not replace) bytes or text strings, fully or partially undo changes, get information on a block, as well as print, save, and fill a block. And there are handy safety features like a read-only mode and an automatic backup copy. One other notable feature is the ability to move through a disk's directory/file structure by jumping links. Unfortunately, this seems to be just partially implemented, because you can neither go up and down directory levels nor go backwards through the links.

With a clean, modern design and a good feature set, AZap certainly proves to



be one of the better binary editors available. Besides a more comprehensive way to traverse a disk's structure, I would also like to see AZap identify fields within directory blocks, not only the block type.

StarWoids (shareware, \$15)

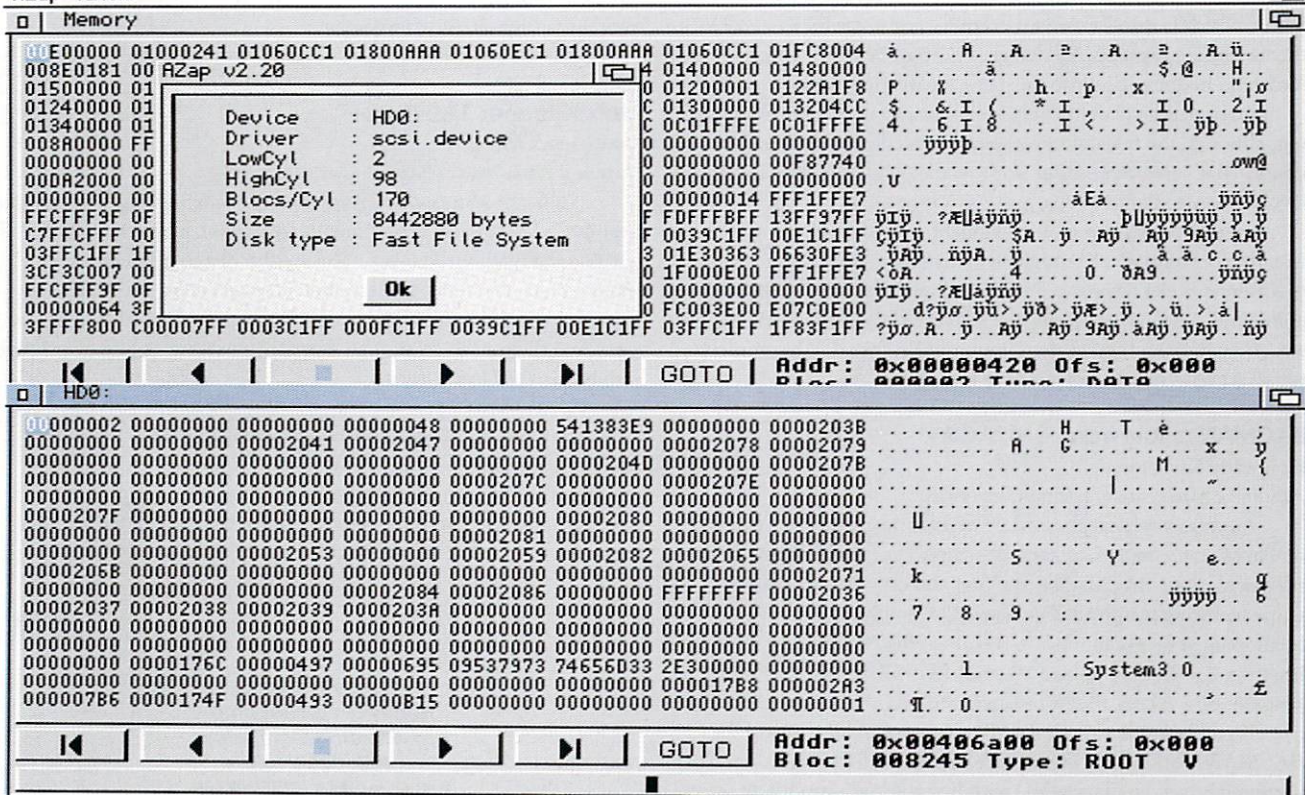
by Kift-Crawford-Wells

Aminet: /game/misc/StarWoids1.lha

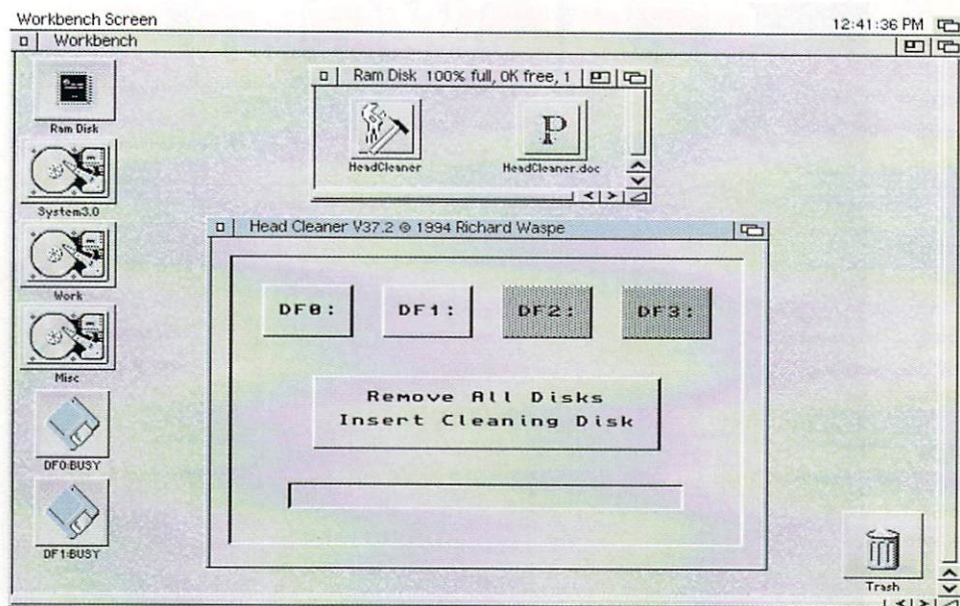
(377K) StarWoids2.lha (459K)

Since its release in July, StarWoids has generated quite a bit of interest online - for

AZap v2.20



AZap, by Dennis Gounelle, allows you to manipulate files, memory, and disk devices. AZap's interface displays a block of up to 512 bytes in both hexadecimal and ASCII formats for each device.



HeadCleaner and an inexpensive cleaning kit can greatly reduce errors on your floppy drives.

good reason. Mostly based on Asteroids with a Star Wars theme (name changed for obvious legal reasons), this game casts you as a Rebel X-Wing fighter pilot. Your job is essentially to rescue fellow soldiers from such memorable places as Hoth and Endor, while fighting off enemies from the evil Empire. The X-Wing behaves much like the ship in Asteroids, so you need to be aware of your direction, thrust, momentum, and gravity to successfully maneuver around the 2D terrain. And rescuing people requires careful vertical landings.

Undoubtedly part of StarWoids' appeal is how its implementation, which features excellent graphics and sounds (especially the theme music), captures the magic of the Star Wars movies. Yet the movie tie-in doesn't eclipse the game's playability. The unregistered, 3-level demo version is fun and extremely challenging, although the registered version (when completed) should be easier. That version promises improvements including many more levels, raytraced animations, and AGA graphics.

Despite the lack of multitasking, StarWoids remains system friendly, running on all Amigas with at least 1MB RAM. System requirements can be reduced by disabling the music and title animation. My one quibble is that you can only see the entire game screen by first booting your computer in PAL mode. Recommended for all Amiga gamers, not just Star Wars fans.

BACMAN (shareware, \$10; AGA)

by Freddy Krysztofiak

Aminet: /game/misc/bacman.lha (490K)

As you may have guessed from its name, BACMAN is a take on PacMan, the most famous video game ever. Not just another mediocre clone, BACMAN is the first and only Amiga PacMan game featuring beautiful 256-color AGA graphics. The visuals are accompanied by great music and sound effects. The price for all this is a huge 1.3MB executable that must fit in CHIP RAM, but there's no more disk access after it finishes loading.

If you're familiar with PacMan, you essentially know how BACMAN works. Your objective is to collect all the little dots scattered around a maze while avoiding the bad guys intent on killing you. Of course there are the requisite "power pills" and

bonuses. BACMAN provide 18 levels of dot-collecting action, complete with different mazes, enemies, and special effects to add some variety.

All the addictiveness of the original PacMan is still here. BACMAN is more difficult however, as the enemies continue to move around after you eat them, rather than temporarily returning to a home base. It's also very easy to get caught while turning a corner in a maze. The game isn't too system friendly either. You must use a PAL screen mode before running it, it doesn't multitask, and you must reboot the system to quit. Nevertheless, BACMAN remains a high-quality, fun game.

HeadCleaner 37.2 (2.04+)

by Richard Waspe

Aminet: /disk/misc/headcleaner372.lha (9K)

While modern floppy drives are very reliable, frequent use can result in a build up of contaminants (dirt, dust, magnetic oxides, etc.) on the read/write heads. This might lead to disk errors or - even worse - lost data. Though these dangers aren't as extreme as some people think, it's still a good idea to clean the heads every now and then. All it takes is an inexpensive cleaning kit and a small utility such as HeadCleaner.

HeadCleaner opens a window with four floppy drive gadgets and a progress bar. First apply some cleaning solution to your cleaning disk, insert it into the desired drive, and click on a drive gadget. The program then steps the heads across the spinning disk for 20 seconds so that the cleaning surface is used evenly. Simple and effective best describe HeadCleaner.

•AC•

Please Write to:
Henning Vahlenkamp
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

CD-32 \$329 \$459 CDNS - 68EC020 Cpu @ 14 Mhz - AGA 32-Bit Chipset - 2 MB Chip RAM - 600 MB CD-ROM Drive - Double Speed CD-ROM Limited Supplies!	A1200 \$359 \$499 CDNS - 68EC020 Cpu @ 14 Mhz - AGA 32-Bit Chipset - 2 MB Chip RAM - IDE Hard Drive Controller - 880K Floppy Drive Back in Stock!	4000/030 \$1499 \$2099 CDNS - 68EC030 Cpu @ 25 Mhz - Math Chip Optional - 2 MB Chip RAM - IDE Hard Drive Controller - 1.76 MB Floppy Drive Back in Stock!	4000/040LC \$1799 \$2499 CDNS - 68LC040 Cpu @ 25 Mhz - Math Chip Optional - 2 MB Chip RAM - IDE Hard Drive Controller - 1.76 MB Floppy Drive Supplies Limited!	4000/040 \$1999 \$2769 CDNS - 68040 Cpu @ 25 Mhz - Math Chip built-in - 2 MB Chip RAM - IDE Hard Drive Controller - 1.76 MB Floppy Drive Call for Availability!	4000 Tower \$2499 \$3449 CDNS - 68040 Cpu @ 25 Mhz - Math Chip built-in - 2 MB Chip RAM - SCSI & IDE Drive Controller - 1.76 MB Floppy Drive Call for Availability!
---	--	--	---	--	--

The details of the Commodore buy-out were not finalised when this ad was printed, however all indications are that this change of direction will put the Amiga in it's strongest position ever! We are very excited about the future of the Amiga and are continuing to offer the best possible prices, guaranteed!

CD-32 \$379 \$519 CDNS - 2 MB Chip RAM - Double Speed CD-ROM - MicroCosm & Chaos Engine Limited Supplies!	A1200 HD \$579 \$799 CDNS - 68EC020 Cpu @ 14 Mhz - 2 MB Chip RAM - 120 MB Internal IDE Drive Limited Supplies!	4000/030 \$1699 \$2379 CDNS - 68EC030 Cpu @ 25 Mhz - 4 MB RAM - 120 MB IDE Hard Drive Limited Supplies!	4000/040LC \$2149 \$2999 CDNS - 68LC040 Cpu @ 25 Mhz - 6 MB RAM - 210 MB Hard Drive Supplies Limited!	4000/040 \$2349 \$3299 CDNS - 68040 Cpu @ 25 Mhz - 6 MB RAM - 210 MB Hard Drive Supplies Limited!	4000 Tower \$3099 \$4299 CDNS - 68040 Cpu @ 25 Mhz - 6 MB RAM - 540 MB SCSI Hard Drive Call for Availability!
--	---	--	--	--	--


Amiga 1200 HD - Amiga 1200 Computer - 68020 CPU @ 14 Mhz - 2MB RAM - 210 MB Internal Hard Drive - All Cables & Connectors \$699 \$969 CDNS (Yes, we actually have 1200's)	Amiga 1200/030 - Amiga 1200 Computer - 68030 CPU @ 40 Mhz - 6MB RAM - 210 MB Internal Hard Drive - All Cables & Connectors \$1,299 \$1,799 CDNS (Yes, we actually have 1200's)	Amiga 4000/50Mhz - Amiga 4000 Computer - 68030 CPU @ 25 Mhz - 68882 FPU @ 50 Mhz - 6 MB RAM - 340 MB Hard Drive \$1,999 \$2,799 CDNS (High Speed Rendering!)	Amiga 4000/40Mhz - Amiga 4000 Computer - 68040 CPU/FPU @ 40 Mhz - 8 MB RAM - 210 MB Hard Drive - Ideal LightWave Platform \$2,999 \$4,099 CDNS (Fastest Amiga Ever!)	Toaster @ 40Mhz - Amiga 4000 Computer - 68040 Card @ 40 Mhz - 14 MB RAM - 420 FAST Hard Drive - Video Toaster 3.1 Card \$5,499 \$7,599 CDNS (Best Toaster Starter Ever!)
---	--	--	--	--

Mitsumi 2X Speed CD - Tandem Controller - Groliers Encyclopedia - Cables & Software \$229 \$319 CDNS	14,400 Baud Modem - Send & Receive FAX - V.42bis, MNP5 - Compatible with GP-FAX \$119 \$165 CDNS	Electrohome 1440 - Color MultiSync Monitor - 15-40Khz, .28mm dot Pitch - Developed here in Canada! \$449 \$629 CDNS	VLab-Motion Card - Digital Non-Linear Editing - Real Time Digitiser - Animations & Movies \$1499 \$2079 CDNS
Deluxe Paint 4.5 (AGA) - AGA Support (HAM8) - Animation & Morphing - THE Amiga Standard! \$69 \$95 CDNS	Final Copy II (AGA) - WYSIWYG on Screen - Laser Quality Printing - 100,000 word Spell Checker \$39 \$55 CDNS	Commodore 2024 - 1024 X 800 Non-Interlaced - Regular Price is over \$800! - Perfect for Desktop Publishing \$189 \$259 CDNS	PAR Animation Card - 60 FPS Animation - True 24-bit output - with 500 MB Hard Drive \$1999 \$2769 CDNS
WordsWorth WordPro - WYSIWYG on Screen - Best WordPro Available - With Spell Checker \$59 \$79 CDNS	Deluxe Kit #1 (all 3!) - KindWords (WordPro) - DeluxePaint (Painting) - Ports of Call (Game) \$49 \$69 CDNS	CD-ROM Sale (all 4!) - Groliers Encyclopedia - World Vista Atlas - Diggers & Lemmings \$69 \$95 CDNS	Video Toaster 3.1 - Digital Video Effects - LightWave, ToasterPaint - with the purchase of any 4000 System \$1799 \$2769 CDNS
Great Games, \$9 Each - Chaos Engine, Zool, SpellBound, Body Blows, Disposable Hero, Nick Faldo Golf, \$9 ea \$13 CDNS	Great Games, \$9 Each - Pinball Fantasies, Soccer Kid, Syndicate, Donk, Krusty's Fun House, Beast Lord, Trolls, Morph \$9 ea \$13 CDNS	Game Pack #2 (all 6!) - Ultimate Golf, Gunship, Toyota Celica GT, SWIV Gazza II, Test Drive II: Duel \$25 \$35 CDNS	Image FX 1.5 - Image Manipulation - Painting Program Included - Controls Scanners & 24-bit Cards \$149 \$209 CDNS
Deluxe Kit #2 (all 3!) - MaxiPlan (Spreadsheet) - Ports of Call (Game) - Zany Golf (Game) \$39 \$55 CDNS	Deluxe Kit #3 (all 5!) - KindWords, Fusion Paint - Indiana Jones, F40 Pursuit - FA/18 Interceptor \$39 \$55 CDNS	A1200 RAM Board - 1, 2, 4 or 8 MB of RAM - Math Chip Socket - Clock & Calendar with Battery \$79 \$109 CDNS	A1240 40Mhz Board - 68030 CPU at 40Mhz - 1, 2, 4 or 8 MB of RAM - Clock & Calendar with Battery \$279 \$389 CDNS

We have the best prices on: Amiga, ASDG, AlfaData, Axiom Software, Best Data Products, CSA, Digital Creations, Digital Processing Systems, DKB, Electronic Arts, Expansion Systems, Expert Systems, Fargo, Epson, Groliers, GVP, Gold Disk, Heifner, Hewlett Packard, IDEK, Interworks, Iomega, MacroSystems, Maxtor, Microbotics, Micropolis, Migrator, Moonlighter, NEC, NewTek, Primavera, Prime Image, Pysynopsis, Quantum, ReadySoft, Rombo, Samsung, Sanyo, Seagate, Softlogic, Softwood, Star, SunRize, Supra, Syquest, US Robotics, Utilities Unlimited, Warm & Fuzzy Logic, & Many, Many More! Call us with your best price yet!

Shipping & Handling
 Software, Peripherals & Accessories
 0-20lbs \$1.00/lb
 Over 20lbs add .50/lb
Computers & Monitors
 CD-32 or A1200 \$19
 A4000 or 4000T \$39
 Monitor \$39
 Next Day & Second Day Air is also available.
 These are the average rates for ground service within Canada & the USA and include all regular shipping, handling, duty, brokerage, customs clearance and door to door delivery. Delivery times are not guaranteed. By default, courier insurance only covers your shipment for \$2.00 / lb. UPS/FedEx/Mail will not accept claims for damages without you specifically buying additional insurance. Full coverage insurance is 4% of insured amount.

Best Price... Guaranteed!



Computer Answers

PRINCE ALBERT, SK. CANADA

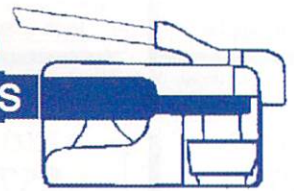
(306) 953-8960
(306) 953-8961
 9:30 - 6:00 Mon-Sat
 (Central Time)
 Info: (306) 764-2888
 Fax: (306) 764-0088
 BBS: (306) 764-0888 (7 Lines)

** Medium print... The US\$ prices shown are based on the US\$-Canadian\$ exchange rate as of ad creation therefore actual prices will vary slightly (usually less than 1/2%). All transactions are in Canadian funds. Your bank will convert to Canadian funds when you place an order and we authorise your card. All tariffs & duties are included, you will not be charged any extra custom fees of any kind. This ad shows products & pricing available to us as of Aug 31/94. By the time you read this in the Nov 94 issue, some things will probably have changed. Delivery times are not guaranteed. Items out of stock will be special ordered and shipped when available. There is a 15% restocking fee on refused/cancelled/returned (except returned for warranty repair). Sorry, but we can't be responsible for damage, delays or loss during shipping, so please insure your order. Prices shown reflect a 2% Cash discount. Commodore UK Rules! (Amiga International!)

on line

amiga telecommunications

by
Rob
Hays



This month's files include a ray tracing software package and accessories, as well as a security program to protect your disks from prying eyes.

POV

Personally, I have always been fascinated by ray tracing software. The idea that my personal computer can create photo-realistic images that have no basis in reality still amazes me. Persistence Of Vision is a multi-platform ray tracing package that is copyrighted freeware. This means that the authors retain copyright ownership of the program, but no fee is requested. Versions of the POV program are available for IBM compatibles and Macintosh, in addition to the Amiga version. POV is based on an earlier program named DKBTrace, and is the product of a large programming team headed by Chris Young.

Two separate versions of the POV program itself are included in the distribution archive, one for systems with a math co-processor, and one for systems without. Also included are sample scenes and the data files used to construct them. The

output from the program is saved to a file in either the program's own format, or TARGA format. Images can be displayed in HAM6, HAM8, HAME, or Firecracker modes. Utilities are included to convert the POV format files to Amiga IFF24, and Amiga HAM6 files. You can also convert TARGA files to POV or GIF formats for transportability to other systems.

Scenes to be rendered are generated from a text file whose format bears a striking resemblance to the C programming language. Figure 1 is a 24 bit rendering of one of the sample scenes, and Listing 1 is a portion of the text file that generated the scene. Objects such as light sources and the camera (your view point), are pre-defined items for which you specify characteristics. These characteristics include such things as position, size, or color, and are usually defined with a series of numbers. More complex objects are built using so-called primitive shapes, such as spheres, planes, and cylinders positioned and joined by the program. Also included are more complex primitives, and textures that can be

mapped onto the surface of an object. Any text editor that will save plain ASCII text can be used to edit or create scene files. There are more than 100 of these files included in the distribution archive that you can experiment with.

POV by itself is not for the Shell-challenged user as everything is command line driven. If you are a confirmed Shell-hater see the next file for salvation. The documentation files run close to 200 pages, covering everything from setting up the software to the theory of ray tracing itself, and a suggested reading list for those who want to know more.

POV requires Workbench 1.3 or higher, and will run simple files on a system with only 1 megabyte of memory. Currently POV is at version 2.2.

PovPanel

If the thought of trying to control all of the complicated aspects of POV through command lines that can include over 29 switches and modifiers, not to mention filenames and paths, gives you nightmares, then read on. Colin Bell has developed a graphical control panel for the POV raytracer called PovPanel, which is currently at version 1.3 (Figure 2). When started, this nifty program opens its own window, and through various Intuition gadgets, allows the user mouse-control of POV's features.

PovPanel is shareware, the requested fee is a minuscule \$5, and will save you hours of typing command line parameters if you use POV very much. The distribution archive also includes a small documentation file to get you up and running in very short order.

LockIt!

Figure 1: A 24 bit rendering of one of the sample scenes using Persistence Of Vision



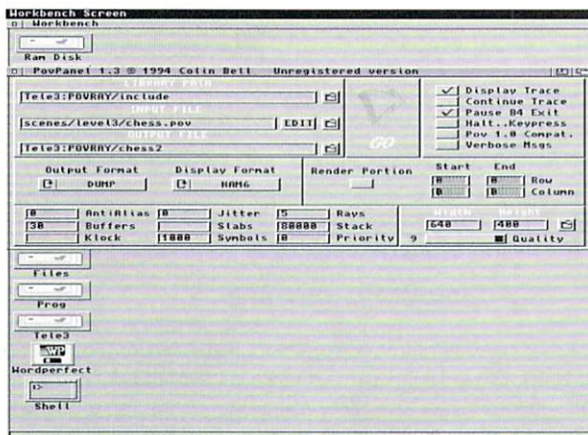


Figure 2: A graphical control panel for the Persistence Of Vision raytracer called PovPanel is currently at version 1.3

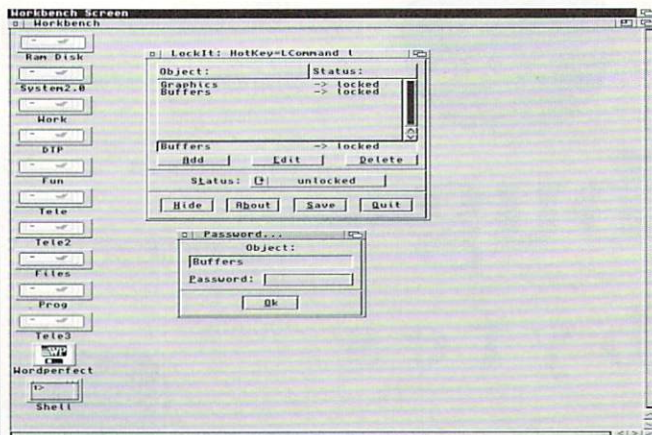


Figure 3: LockIt! from Andreas Linneman is a program that allows you to lock individual files or entire drawers.

Chances are excellent that there are files on your Amiga that you would rather keep private. Unless you live alone, there is always the possibility that someone else using your system may accidentally or otherwise find these files. How would you like to come home and find all of your business correspondence erased through someone's carelessness? The solution is to lock the files/drawers you want to keep private. LockIt! (Figure 3) from Andreas Linneman is a program that allows you to accomplish just this.

Once installed, individual files or entire drawers can be locked. Unlocking requires you to access LockIt!, select the item you wish to unlock (or lock) from a list and type in the correct password. Every item in the control list can have its own password to allow different users access to different files depending on their needs.

While the documentation points out that this is far from absolute security, it should provide a suitable deterrent to the casual file snooper. LockIt! is freeware, and requires Workbench 2.0 or higher.

Where to look

I found the POV files on all 4 systems that I frequent, CompuServe, GENie, Portal, and Delphi. The file sizes vary somewhat from system to system, due to different combinations of files and documentation being uploaded. On CompuServe, look in the AmigaArts section for the files POV.LHA, and POVPAN.LHA. GENie has file #21218, POVAML.LZH, which is the executables, and file #21217, POVDOC.LZH which are the documentation files. PovPanel can be found as file #23625, POVPAN.LHA. The main program archive is 298,240 bytes, the docs are 218,112 bytes, and PovPanel is 12,672 bytes. These sizes are for the files on GENie. Download times

at 2400bps for these files will be approximately 25, 18, and 1 minutes respectively. GENie also lists several sample scenes and utilities available for POV. Delphi has the POV2.2 archive, as well as a couple of older versions. Portal has the largest collection of POV files, including a version for the A4000. Use POV as a keyword to search for related files.

LockIt! I found only on GENie, as file #22870, LOCKIT.LHA. It is 18,432 bytes, and should take about a minute and a half at 2400bps.

Where to find me

R.Hays5	on GENie
RHAYS	on Delphi
72764,2066	on CompuServe
Rob Hays	on Portal

InterNet users, the quickest response will probably occur if you use:
R.HAYS5@GENIE.GEIS.COM

For U.S. Mail: Rob Hays, P.O. Box 194, Bloomington, IN 47402, Please include a SASE if you need a personal reply.

If you run an Amiga specific BBS, send me the information callers will need to access your system. Phone number(s), modem speeds, software settings, etc. As a service to the Amiga community I will include the information I receive in this column from time to time. Send the info to any of the addresses above.

That is all for now. Since the next issue is December, I will start listing some of the BBS information that has been forwarded to me. This will let everyone who gets a new modem for Christmas put it to immediate use. See you on line!

•AC•

Listing

```
#include "shapes.inc"
#include "colors.inc"
#include "textures.inc"

camera {
    location <59, 20, -48>
    direction <0, 0, 1>
    up <0, 1, 0>
    right <4/3, 0, 0>
    look_at <0, 0, 1>
}

light_source { <800, 600, -200> colour White }

#declare Pawn = union {
    sphere { <0, 7, 0>, 1.5 }

    sphere { <0, 0, 0>, 1
        scale <1.2, 0.3, 1.2>
        translate 5.5*y
    }
}

intersection {
    plane { y, 5.5 }
    object {
        Hyperboloid_Y
        translate 5*y
        scale <0.5, 1, 0.5>
    }
    plane { -y, -2.5 }
}

sphere { <0, 0, 0>, 1
    scale <2, 0.5, 2>
    translate <0, 2.3, 0>
}

intersection {
    sphere { <0, 0, 0>, 2.5 }
    plane { -y, 0 }
}

#declare Rook = union {
    intersection {
        union {
            plane { +x, -0.5 }
            plane { -x, -0.5 }
            plane { y, 9 }
        }
    }

    union {
        plane { +z, -0.5 }
        plane { -z, -0.5 }
    }
}
```

You May Also Write to:
Rob Hays
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

bug bytes

by John Steiner

tips

hints

workarounds

suggestions

updates

fixes

Using a Standard Serial Cable on the A1000

Richard Norman sent EMail with comments on several topics. He writes, *Regarding the A1000 and 14.4K modems, I installed one on my friend's A1000 running 1.3. We took a "normal" cable, and looked at the Amiga manual and clipped the wires that it said shouldn't be used. Works great!*

Interleave Questions and Intermittent Errors on a SCSI System

Mr. Norman also asked about his friend's C Ltd. controller and 50MB Okidata 570 hard drive. *He is having intermittent R/W errors. He's also using the C Ltd. external 1MB ram card (can this be expanded beyond 1MB by changing to denser chips?) He's not sure all the driver software is the latest version. We did a low-level format using an interleave of 6, which gave us the fastest low-level format time. We tried high-level format interleaves of 6, 1 and 0. No matter what the interleave, we were only getting about 87K per second throughput, less than the 150K promised in the manual. Does anybody know the best interleaves for this hardware? He's using the ACB4000 driver software, which the manual states is for the C Ltd. Adaptec 4000 MFM-SCSI controller. However, it was stated to be a 50MB system, which required RLL mode and the ACB4070 driver software to be used, and presumably, the C Ltd. Adaptec 4070 RLL-SCSI controller. We have no idea which number controller he has, but we do need to get the ACB4070 device driver. He's looking for others with C Ltd. controllers, and leads on where to contact the developers for advice. He also needs the right driver device.*

Another symptom he's having is that whole drawers and subdirectories from one partition are being duplicated on the other two partitions. I initially thought he was making some sort of mistake, but I have verified that these "cloned" files re-appear by themselves! I can delete them, but in a few days, the files from that one partition (one containing the highest cylinders) wind up copied onto his other two partitions.

Amiga Networking Information

Mr. Norman also commented about networking on the Amiga. He comments, *I thought you and Mr. Everett Greene might like a copy of my Amiga Networking FAQ. You can download it from Aminet in the docs/help directory.*

Mr. Greene may or may not know that the Commodore networking products were sold to various third party vendors. Envoy from IAM is the Amiga-to-Amiga software that would have been part of 3.1, but was pulled out. Envoy is available now.

David Ferguson of Pontotoc, MS also supplied some information on Amiga Networking. He uses an A2065 ENet card with the AS225 TCP/IP software. They have three Amiga systems running 10Base2 Thin ENet. He noted that with help from their system administrator, they were able to get up and running, even though the process was "a little tricky." While space doesn't allow me to include all of his positive comments on Amiga networking, he notes, *I can easily say that networking is virtually invisible to the end-user.*

He also notes, *Commodore's A2065 has been replaced by the A2066 (available only from CEI) with a 25% performance boost and is A2000/3000(T)/4000(T) compatible. The AmiTCP shareware, ENLAN's DFS and Oxixi's Novell networking software is said to be compatible with the A2065/2066 ENet cards. The ASDG LanRover will not work with the AS225 TCP/IP software but is SANA-II compliant. Interwork's ENLAN networking software does work with the LanRover.*

A Scary Backup Story

Harry Runge sent EMail with a very long description of his scary experience with Quarterback 6.0. *I edited the letter heavily due to space limitations. He writes, What follows is an anomaly and a truly scary one. It has to do with QuarterBack 6.0. First, let me describe my setup and system. The system is an A1000 modified with the Rejuvenator and the CSA Derringer 25MHz/68030 boards. Ram total is 6.5MB with the 2MB Agnus and 2MB 32-bit in the Derringer. There are two HD's, Quantum 52 LPS and Quantum 170 ELS. They are divided into six partitions, four on the '170 (contains the boot partition) and two on the '52. Four floppy drives consist of three 3.5's and one 5.25 make up the rest of the Drives' configuration. DOS Version is 2.1.*

The drives are named SupraDrive0-6 (DH0: - DH6:) with '5 and '6 occupying the Quantum 52. DH5 and DH6 at the time were 15MB and 34MB respectively. I had installed the virtual memory program swap file on DH5; I sized it at 10MB which left 5MB unused. I decided to reconfigure the drive to 10MB for DH5 and the rest, 39MB, for DH6. There was only 12MB to backup and restore. Using QuarterBack 6.0, the backup took 12 floppies in all.

After warm rebooting, I started QBack 6, selected DH6 and hit 'Restore'. It started reading the 'Catalog'; after a few seconds, it popped a requester saying that the catalog was corrupted. After I elected to continue, the listing stalled out about halfway. I clicked the 'Proceed' button and everything locked up immediately. I warm booted and tried again. This time, the listing stalled out at a different place.

I tried the alternate catalog with the same erratic results. I tried the New Horizons support number and got a recording. I tried DiskSalv 2 and Recover unsuccessfully. Then I tried QBack 5 and 5.02; both of those versions exited before I even got to the 'Proceed' phase.

Next the thought occurred that backups of the other drive's partitions might also have problems. Running QBack 6 once more, I hit 'Restore' for DH0. This backup set was also corrupt! Next I loaded up V 5.02 and backed up DH0. That done, I powered down, waited at least a minute and powered up. After all had settled down, I ran through the 'Restore' for DH0. It read the entire catalog without problem.

That completed, I gave QBack 6 another go. This time I made a copy of the original program disk and started with that. Hitting the 'Restore' button, this time it read through the full catalog without error. I punched 'Proceed'. The first four were Icon files which popped the requester. The program proceeded to recover the remaining files just as if nothing had ever happened. I zapped the four corrupt Icon files with new ones. Next I reinstalled QBack 6 on DH0 and did a backup on DH6. After shutting down for several minutes, I powered up and ran QBack 6 'Restore' on DH6. Although just restoring a few files, those with the originally corrupt icons, the program functioned flawlessly.

Mr. Runge speculated on several reasons why he might have had the problem in the first place. He notes that he had compressed QBack 6 with Imploder. He also suggests there might be some obscure bug in QBack 6. He mentioned the August '94 Bug Bytes column which describes a similar problem. He also lives in an area of frequent electric power interruptions. His last speculation was the possibility of an obscure virus. He concluded his letter with some very good advice, *After doing a backup, check the 'Restore' function to determine if you have a valid backup.*

Workbench 2.1 floppy errors

Pat Fish sent EMail with questions about floppy access on an A1000 running 2.04 KickStart and WorkBench 2.1. He writes, *I have 8.5MB of RAM and a 130MB HD.*

Under 2.04 and above I notice that multitasking isn't as smooth or reliable as it was under 1.3. Particularly during simultaneous serial IO and floppy writes. Worse, the floppies no longer seem reliable. Both OFS and FFS floppies are unreliable. Often write/read errors are given. When dragging icons to the floppies, a requester often pops up with the ambiguous message:

Error while copying 'filename'

Error 20

Remove incomplete object?

Note that the disk for this example was only 48% full and the file being copied was only 78K and plenty of room was left.

When copying via the Shell, it says:

6.Ram Disk:> copy 2.1:Trek/Yar df0:

Error writing df0:Yar

Remove incomplete destination file? y

Destination file "df0:Yar" removed

Continue after error? y

Pat wonders if anyone has any suggestions for him.

Mega Midget Racer and the MegaChip.

Greg Bastow sent EMail with some suggestions for topics discussed in the August 1994 Bug Bytes. He writes, *John Warren was inquiring about getting a MegaChip (by DKB) working in his Amiga 500. I don't specifically have a solution for him, but I did notice that he does only have a 512k of chip ram. He should attempt the 512k to 1MB Agnus upgrade. By running a program like SysInfo by Nick Wilson (Shareware) you can determine which Agnus he actually has. If he has an 8372, then a couple of simple changes to the motherboard will enable the other 512k of ram as Chip Ram. If he has a 8370/8371 then he will have to purchase a newer Agnus chip (8372 or 8375 will both work).*

As far as moving the MegaChip using cabling, that would be inadvisable. The current MegaChip's are small daughter cards that plug directly into the Agnus socket, and trying to alter this method can cause problem with the chips.

Ami-Back and High Density Drive

Mr. Bastow also commented on the high density drive issue and Ami-Back. *I believe the problem you are experiencing is a general fault with how Ami-Back (and every other such program I have ever tried) deals with floppies.*

When you first run Ami-Back it goes out, and sends a GetGeometry() command to all the devices it can find. When you run Ami-Back with 2 low density disks in those high density drives, this command will not return HIGH DENSITY. The simplest solution is to have 2 high density disks in the drives when you first start Ami-Back.

I am hoping in the upcoming V3.0 of Ami-Back, the boys at Intelligent Designs (new company name, formally Moonlighter Software - same programmers) will allow a "Refresh Device" command, so you don't have to quit the program and restart it because you forgot to put a HD disk in the drive.

Problems with Reason Under Workbench 2.1

From Stockholm, Sweden, Dr. Claes-Gustaf Nordquist, sent E-mail with a problem when using his grammar checker. He writes, *I have a problem with the grammar checker program Reason from Two Guys, for my Amiga. I recently upgraded my computer with a 33 MHz 68030 with MMU and a FPU and 12MB of RAM. My system also has an 85MB hard drive, an X-drive, a modem, a printer and a scanner. I also upgraded to WB 2.1. Since then, Reason can not be run from the hard drive. It works from floppy though, and it worked fine on WB 2.0 without the accelerator. English is not my native language and I need the program to check what I write in English. To work it from floppy is also a nuisance.*

It sounds like something in the new startup-sequence is causing the problem. You might try temporarily removing items from the startup and test the program. Of course, some startup commands may be necessary to make sure all of your other applications work correctly. If you find an offending application, you will have to decide which you value most, or disable one while you run your grammar checking tasks. How about it readers? Any other suggestions?

Mathieeedoubbas Revisited

Hernan Rodrigo Eguiluz of Argentina (no city given) writes with a suggestion on locating a compatible version of SetPatch. He comments, *There is a version of SetPatch in the Frozen Fish CD-ROM. It is located in the BBS/MAR94/DEV/MISC/ directory and it's called setpatch.lha. In it's documentation, the aforementioned problem is cited explicitly. After using it in my Amiga 1200, the guru hasn't come up any more.*

That's all for this month. If you have any workarounds or bugs to report, or if you know of any upgrades to commercial software, you may notify me by writing to:

John Steiner
c/o Amazing Computing
Box 2140
Fall River, MA 02722

...or leave EMail to

John Steiner on Portal
73075,1735 on CompuServe
Internet mail can be sent to
73075.1735@compuserve.com
FAX John Steiner at (701)280-0764
(8:30 A.M. to 5:30 P.M. Central time, Monday-Friday)



Feedback

Letters to the Editor

Amiga Technology in the Public Domain? Amiga Spreadsheets—Please. CD32 worldwide compatibility problems.

Dear AC,

The last 3 Bandito articles were, to me, a waste of paper. Worse, Bandito errors could be quoted as a “noted authority” and without the Editor’s corrective comments.

If the Bandito’s rumors were about planned or developing hardware or software, then we could respond in ways that would support new Amiga products and product improvements. Instead Bandito runs replays of Commodore management problems that we can’t help and Amiga bashers can feast upon.

I used to give issues of AC to prospective Amiga users, but quit last year after being questioned about a very negative Bandito article and a contradictory editorial.

The last page of the August 94 Byte issue was a positive and constructive obituary. Possibly the best Amiga article I’ve seen in a non-Amiga magazine. That obituary could sell more Amigas than the last dozen Bandito articles.

It may now be a dead issue, depending on the future use of Commodore assets, but Bandito articles don’t help me use my Amigas, improve my Amigas, plan to upgrade or buy or sell Amigas.

Thanks for your time and consideration.

Eric Elliott
Batesville, AR

Dear AC,

Thanks for setting the Bandito straight; that man would depress a hyena.

Doran A Jones
Santee, CA

The Bandito has always held to “his” own counsel. As the Amiga market improves, I believe we will see a little better life in the Bandito columns. Unfortunately (or fortunately if you can take it that way), the bandito was correct about Commodore. Not that anyone, including CBM stockholders could have done anything about it. What I would like to see the Bandito uncover is what lawsuits, if any, are following the merry see-no-evil board of directors and officers.

Dear AC,

I want to congratulate you on finally interviewing David Pleasance. I believe that without the driving force of this man’s love, devotion, and enthusiasm for the Amiga and its technology, the Amiga would not have established the foothold in the UK that it has. If only Commodore had placed other individuals of the same caliber in key management positions throughout the company, maybe the Amiga and its users would not be in the position we are today. We can only hope that he is successful in his bid for the company.

One item that I did find confusing while reading the article was AC’s very first question. You ask Mr. Pleasance, “You are heading up a Commodore management group to purchase Commodore and the Amiga technology?” He answered, “That is correct...” Does this mean that if Mr. Pleasance’s group is successful in purchasing the company, Commodore stock will be worth something again? It has been my understanding that other companies interested in Commodore would only be buying the Amiga technology and not Commodore itself. What was stated in AC is radically different from any of the other offers put forth.

Since the demise of Commodore, what has become of the Commodore Shareholders movement and its leaders?

Keep up the good work AC. The quality of this magazine continues to improve. You serve all Amiga users and not just those involved in Video, and graphics. There are still those of us out here who continue to use our machines for business applications, personal productivity, and entertainment. Thank you for not forgetting us.

Sincerely,
Doug Libby
Folsom, CA

No, Commodore is gone and those people who placed their faith (or at least their money) in the hands of Commodore International’s directors have suffered greatly (see above). Whoever “Buys Commodore” is only buying the assets which are being sold to satisfy debtors, not stockholders.

As far as the Commodore Shareholder’s movement, we have not heard from them. However, since there is no Commodore stock, we doubt if there will be any more action in the movement. This is unfortunate and unfair, but it does not make it any less real.

Dear AC,

The interview with David Pleasance was encouraging, but an important question was not asked: what kind of computer is the resurrected Amiga to be?

Commodore UK successfully sold the Amiga as a game machine. Does Mr. Pleasance intend to continue this marketing strategy? He may have some success in Great Britain, but with the dominance of Nintendo and Sega in the U.S., we know that strategy won't work here. Video editing and multimedia was supposed to be the future of the Amiga in America, but Commodore went out of business waiting for that horse to finish.

I am a long time PC user, and am intimately familiar with that system's many limitations. It is my opinion that the business market is ripe for a computer with the multi-tasking advantages of the Amiga. Couple the Amiga's advanced engineering with competent marketing, add sophisticated word processors, spreadsheets, and databases, and the Amiga would be very competitive in the business market.

I strongly suggest that when Mr. Pleasance succeeds in acquiring the Amiga (alternatives do not seem viable), his management group should concentrate on persuading software developers to create sophisticated business programs for the new Amiga, and market the computer as an office automation workstation.

After all, considering that the old strategies resulted in bankruptcy, what does Mr. Pleasance have to lose?

Sincerely,
Jeffrey T. Powell
West Covina, CA

As our coverage continues at press time, neither Mr. Pleasance nor any other party have yet won the bid for the Amiga. The situation is frustrating but it does not change. However, in preparation for a time when Mr. Pleasance (or someone else) will win the bid, we will forward all letters addressed to a bidder and sent c/o AC. This is your opportunity to get your message in early. I can't promise definitive action by the recipient. But, if we do not try, we have already been defeated.

Dear AC,

I've been buying your magazine off the newsstand for about a year now, and luckily I ran across it in the beginning by accident. I get all the Amiga magazines that I know about, and I feel that yours is by far the BEST! I can't wait to get my hands on the new issue every month! I read the magazine from cover to cover in about a day. I base almost all of my purchases on your magazine reviews and articles.

I currently own 4 Amigas and my A2000HD is equipped with a Video Toaster 2000. I own my own production company and do a local Real Estate Show for a local broadcast station. I also work for a cable ad insertion company and we also have a Video Toaster there. I have used and have seen what some of the new PC's can do, and the Amiga alone without the Video Toaster has been better than that for many years! And with the tips your magazine has given me, I know that with the Amiga technology, I will still be ahead of the game for at least a couple of years without any new development.

So now to my real point. Enclosed is my check for a subscription to your magazine, this way rather than buying it off the

newsstand you know you have my support! Good luck Amazing! You are truly an AMAZING Magazine!

Yours Truly,
Chris Wurtinger
Antigo, WI

Dear AC,

I have been a subscriber to both Amazing Computing and Amiga World for the past few years. This year I decided to reduce my subscription to the one magazine that best fits my needs.

Amiga World has reduced their Amiga coverage from 96 pages to 64 pages... a whopping 33% less content for exactly the same price. I wonder if they can possibly imagine an everyday salaried or hourly worker going to their boss and saying "I've decided to work 33% fewer hours but I require you to continue paying me as if I were still working full time"? The sound of the front door hitting them in the rear end as they exited their job for the final time would be the next sound heard... at least in the REAL world.

In as much as AC has not reduced their Amiga coverage and continues to bring Amiga users 80 pages of the best editorials, reviews, new product previews, and even some how-to articles each and every month. I'm voting (with my wallet) for AC as the best Amiga coverage available to US Amiga users. I especially like the fact that AC, unlike your primary competitor, has not gotten totally bogged down in video, which is of virtually no interest to me.

I am pleased to extend my AC subscription for another year. To you and the entire AC staff, a hearty well-done is in order... WELL DONE, Guys 'n Gals... and best wishes for a great 1995!

Sincerely,
Edward E Brown
Vancouver, WA

In these difficult times, each person must make decisions and create policy that they believe is not only economically viable, but important to the industry. Everyone at AC has worked at least twice as hard as we did before this crisis to get the best news to our readers quickly. I owe a special thank you to the Amazing authors who have worked diligently to continue their columns and provide information. While the Amiga will once again be sold, it is only through the hard work of its true supporters that there will be a market for it.

**If you have a letter for
Feedback, send it to:**

**Feedback
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722**

Beginning Assembly

by Bill Nee

Welcome to assembly language programming. In the next several articles I'll cover the major machine language programming techniques for the Amiga - libraries, screens, windows, graphics, sound, menus, gadgets, math co-processor and other topics. In addition each article will have a working program for you to assemble that demonstrates that particular topic. I'll be using the PHXASS assembler, a Public Domain program available from many sources (Fish Disk #749); I like this assembler for some reasons I'll discuss in a future article and I suggest you start now to get a copy so you can follow along. Other assemblers will probably work with minor adjustments.

WHY ASSEMBLY LANGUAGE?

Assembly language code communicates directly with the computer. You have to write your program in great detail, but the speed at which it works will astound you. A well-written machine language program will run 10 times faster than a Basic one, and two to five times faster than most compiled ones. It does take time to learn assembly procedure and techniques but once you have a good routine it can be saved and used later in other programs. And there are even some things you can do in assembly language that are almost impossible to do in Basic. Take the time to follow these articles and listings and I think you'll be quite impressed with what you can do using assembly language. Now let's get down to some basics.

GOOD NEWS AND BAD NEWS

The bad news is that assembly language uses math; the good news is that there are only two digits - 0 and 1. These two digits are the foundation for the Base 2 (binary) system. We humans normally use Base 10 (decimal) numbers, but programmers thrive on Base 2 and it's cousin Base 16 (hexadecimal). The rules for binary math are very simple:

ADDITION	SUBTRACTION	MULTIPLICATION	DIVISION
0 0 1 +0 +1 +1 0 1 10	0 1 1 10 -0 -1 -0 -1 0 0 1 1	0 1 1 x0 x0 x1 0 0 1	0 1 1 /1 /1 /0 0 1 OOPS!!!

Since each number in the binary system is a power of 2 it's very simple to convert numbers from our decimal system to binary and vice versa. For example, the binary number 1011 represents $1*2^3+0*2^2+1*2^1+1*2^0$ or 11 decimal. The decimal number 30 can be represented in powers of two as $16+8+4+2$, so in binary it's 11110.

Each 0 or 1 is called a bit and eights bits in a row is a byte; the bits, however, are numbered from right to left as bit0 to bit7. With eight available bits, one byte could contain a maximum value of 11111111 or 255 decimal. Two bytes in a row (bit15 to bit0) make up a word and two words in a row are a double or long word. Quick, what's the maximum decimal value of a word?

Because binary numbers can get rather large, programmers found it easier to use the Base 16 or Hex to represent values. Since there must be sixteen numbers in this base, the letters A through F

are used to represent decimal 10 through 15. To rapidly convert from binary to Hex, arrange the binary number in groups of four adding zeroes to the left group if necessary; then write the Hex equivalent of each group. For example, convert 111101111011110 to a Hex number:

binary	(0111)	(1011)	(1101)	(1110)	
decimal	(7)	(11)	(13)	(14)	
Hex	7	B	D	E	= 7BDE

What three values could "11" represent?

WHAT ABOUT NEGATIVE NUMBERS?

This works well with regular positive numbers, but how is a value such as -10 represented? The computer thinks of all numbers as being on a wheel; reading the numbers to the right reads them in a positive direction but reading to the left indicates a negative value. Let's use a range of 0 to 255, or 0 to FF. Starting at 0 and reading to the right indicates 1, 2, 3..., but going to the left reads FF, FE, FD, etc. Since the first value to the left is FF, it must represent -1; the next value FE represents -2, and so forth. The middle of the wheel is the boundary between positive and negative values. The positive values range from 0 to 7F and the negative from FF to 80. Using negative numbers cuts the effective range of values in half; instead of 0 to 255 signed numbers have a range of -128 to +127.

Time out! Isn't FF also 255 in decimal? Yes, it is. How does the computer know if we want FF to represent -1 or 255? The answer is that it doesn't care! The only difference to the computer between positive and negative numbers is that in a negative number the left-most bit (called the most significant bit - MSB) must be set; that is, it must be a 1. The MSB of any positive number is always 0. If the MSB is set, a flag within the computer is also set. When we discuss assembly commands later on you'll see that there are different commands for signed (positive and negative values) or unsigned values (only positive). The computer will let you know what you have, but it's up to the programmer to interpret the result.

For now, remember that if you need to use signed values, your range of numbers is cut in half. If you want a positive value greater than 127 you would probably use a word to hold the value. Now the numbers from 0 to 7FFF are positive and those from FFFF to

(continued on page 58)

A Tale of Two DOS's

Comparing AmigaDOS and MS-DOS

by Keith Cameron

Computers are so wide-spread these days that most of us come into contact with them innumerable times daily. Likewise, there are numerous computer types out there. It, therefore, becomes important to be able to function on various machines. In my own case, I learned computer basics on Apples, then moved on to Amigas and Macs, and now I use IBMs extensively. Admittedly, it does get a little confusing at times. Sometimes I find myself typing in an MS-DOS command line on my Amiga or vice-versa.

Although most of us would hate to admit it, IBMs are still the dominant computer type on the market. (When I say IBM, I do so in a generic sense; all IBM compatible computers are intended to be covered by this term.) Many of you probably came to the Amiga from an MS-DOS environment. Some of you may find yourself in the same situation. I am now learning how to use MS-DOS after first learning AmigaDOS. For my own sake as well as the benefit of my readers, I decided to compare these two systems to clarify a few points. Hopefully, this comparison will help you function more effectively on an Amiga if you are accustomed to using an IBM, or vice-versa.

The Amiga is a logical computer system and it is very easy to use — that's why most of us purchased one in the first place. About two years ago, I was forced to use some IBMs in my classroom. At first, I was intimidated because everything seemed so different. After a while, though, I discovered that both operating systems were basically the same with what I call some surface differences. I now find myself moving back and forth between the two systems easily, although the first few moments of use require that I orient myself to the computer I am using.

Since computers use a "startup-sequence" when they are booted, that's a good place for us to begin. On the Amiga, this startup file is found in the 's' directory. In the world of MS-DOS, the equivalent file is called "autoexec.bat", and it is found in the root directory. Both do the same thing. In addition, MS-DOS machines also have a file called "config.sys" which establishes the configuration of the computer and allows users to customize their systems as regards device drivers, buffers, and so forth.

That brings up another point. In AmigaDOS, we have script files which utilize various AmigaDOS commands. In MS-DOS, these script files are known as batch files. In AmigaDOS, a script file can immediately be executed after it is written simply by typing in its name on a command line. However, to make such a file executable from the Workbench as an icon requires a little more effort (I dealt with this topic about one year ago). Batch files in MS-DOS can also be executed immediately from the command line (or the DOS prompt, as it is commonly called in MS-DOS). An advantage, though, is that it can also be executed from the File Manager in Windows, or from the file list in the DOS-Shell, without any special configuring. However, to create an icon in Program

Manager (Windows) for the batch file would require some effort. From my experience, I would argue that batch files in MS-DOS are more common than are script files in AmigaDOS.

On the Amiga, most of the major commands used in AmigaDOS are located in the 'c' directory. There are others which are internal. These include the more commonly used ones, like DIR and DELETE. On MS-DOS machines, most of the commands are stored in the 'DOS' directory. As with their Amiga counterparts, commonly used commands are internal. They are actually stored in a file named COMMAND.COM (found in the root directory) and then loaded into memory when the system is started.

One minor difference between the two systems which still gives me fits is the use of the slashes. MS-DOS uses the back slash (\) between directories while AmigaDOS uses the forward slash (/). MS-DOS uses the forward slash to indicate switches. We will discuss this in more depth later. I prefer the Amiga version, as it is slightly more awkward for me to reach the slash next to the backspace key than the one by the right shift key.

Another thing I like about AmigaDOS is that the names of files and directories are not limited as they are in MS-DOS. In MS-DOS, all such names can be no longer than 8 characters. This causes some rather cryptic names for files and directories. It is much simpler and clearer to be able to name something in full. What I do like about MS-DOS names, though, is the use of three-letter extensions. Simply by looking at the extension found on files, it is often easy to identify what that file does. The major three types of files are .BAT, .SYS, and .EXE. .BAT (or batch) files are like AmigaDOS scripts. .SYS (or system) files contain configuration information about hardware. .EXE (or executable) files contain programs. When you get a new program that might contain, say, 20 files, you know that either a batch file or an executable file will probably start that program. Such programs may also be started by the lessor used .COM files. As is commonly used in AmigaDOS, a .DOC file is often used for document files.

This use of file extensions is much more widespread in MS-DOS than in AmigaDOS. Perhaps this is why the use of wildcards is also much more prevalent in MS-DOS. Even major applications, such as word processors and spreadsheets, make extensive use of such wildcards. Most major applications save files they create with a specialized extension. For example, a document saved using the

Microsoft Works for Windows word processor might have the extension .WPS. Thus, when you use this application to open a file, only .WPS files will be shown by default. You can, of course, alter this. That way, you don't have to look through all the files in that directory. I'd like to see AmigaDOS make more extensive use of this feature.

Since MS-DOS machines are not, by nature, intuitive, special files have to be implemented to make the mouse run. This has been known to cause a problem or two. Of course, if you are working from the command line, you really don't need the mouse, though, do you?

In some of my articles, I have made mention of the history of AmigaDOS command lines that can be referenced by using the arrow keys. Each time you execute a command line, it is stored in this history. This saves a great deal of retyping when you are doing work that involves repeated use of the same or similar command lines. This is a natural feature of the Amiga; in other words, you do not have to invoke this in any way.

MS-DOS machines do not have this feature naturally; at least not to the extent of the Amiga. By pressing the F3 key, you can call up the most recently used command line, but that is all. To have a larger history, a file called DOSKEY has to be loaded into memory. This can be done directly at the DOS prompt or in the autoexec.bat file that boots the machine. Sure, all you have to do is type it once in the autoexec.bat file, but why couldn't this have been done internally. I must admit, though, that once it is loaded, it does have more options than the history on AmigaDOS, although I question the use of such options. It will allow the user, for instance, to display a list of commands that have been stored. You can then select one of these to reuse. But really, how useful is this? By the time you hit F7 to show the list then use other keys to cycle through the list and/or select one of the commands, you could have used the arrow keys to simply move forward or backward to select a command. Yes, MS-DOS allows you to do this as well.

That pretty much lays a foundation for the basics of these two machines. Next month I will begin discussing how specific commands on the two systems compare. My goal here is not to prove that one system is superior to another; rather, by showing the differences, perhaps I can encourage a more efficient system to be created for the Amiga. Let's face it, AmigaDOS could stand some improvement. It is a fine system (yes, I'm partial), but there are some shortcomings as you may be able to see already. For example, in this article, you should be able to tell that I would like a more rigid name system used. I would not like to see a limitation imposed (8 characters, as with MS-DOS), but a more widespread use of extensions on file names, if used in a standard manner, could result in wildcards being used more extensively. Those of you comfortable with wildcards can vouch for their efficiency.

As always, I welcome your comments. If you have recently come to the Amiga from an IBM, what difficulties did you encounter? If you are now having to use an IBM after using only an Amiga, what kinds of problems are you having?

•AC•

Please Write to:
Keith Cameron
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

(continued from page 56)

8000 are negative. What are the largest positive and smallest negative word values?

AND, OR, ETC.

In addition to the arithmetic operations in the binary system there is also a set of Boolean operations for you to use. Named for mathematician George Boole these operations include AND, OR, Exclusive OR, NOT, etc. You probably won't use any more than the first three of these, but here are the rules for several functions:

AND	OR	EOR	NOT	NEG
0 0 1	0 0 1	0 0 1	0 1	1 -1
0 1 1	0 1 1	0 1 1		
0 0 1	0 1 1	0 1 0	1 0	-1 1

At first, these rules don't look that informative, but think of them this way:

X AND 0 = 0	X AND 1 = X
X OR 0 = X	X OR 1 = 1
X EOR X = 0	X EOR Y = 1

The AND rule, for example, could be used to keep a number between 0 and 7; any number AND 7 will always be within this range. You can also force a specific bit to 0. If we want bit1 in a word to be 0, AND the word with 11111101 or FD. All the values remain the same except for bit1 which will always go to 0. In the same manner you can set any bit using OR; if the MSB in a byte must always be 1 OR the word with 10000000 or 80. You can even combine AND with OR to produce specific required results.

The EOR function is very interesting and is also the basis for simple codes. Since same values EOR'd result in 0 and different values EOR'd produce 1, it can be used to toggle values. Keep EOR'ing a counter with 1 and react differently if the result is 0 or 1. This function is also helpful in multiplication or division where a positive times positive, or negative times negative result must be positive while a positive times negative result must be negative. Since opposites result in a 1, repeating the EOR on one of the original numbers will produce the other number. In other words; X EOR Y = Z, Y EOR Z = X and X EOR Z = Y. Try 11 EOR 9 and then EOR that result with 11 or 9.

CODING A MESSAGE

You can make a simple code using the EOR principle. First, pick a value known only to you and the recipient of your code. Then EOR the ASCII value of each letter in your code with the secret value and send the result to the other person. The recipient now only has to EOR the values in the code with the secret value and then print the ASCII values or letters. If the code value is 15, what would the message "JJNK/NBNUFAH/BNHNUFAJ" decode to?

One final operation that is used in many programs is MOD. This produces the result or remainder after dividing by a specific number. The equation 11 MOD 7 would equal 4 since division (11/7) gives a result of 1 with a remainder of 4. How do 17 AND 15 and 17 MOD 15 compare? What about 17 AND 15 and 17 MOD 16?

There's no assembly language program this month. But use the time until the next article to get an assembler. I guarantee you'll be writing, testing, and using an assembly language program

•AC•

Please Write to:
Bill Nee
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140



Roomers

by The Bandito

C-UK & CEI in, Samsung out, and NewTek retains Amiga loyalty while selling to other platforms.

[These statements and projections presented in "Roomers" are rumors in the purest sense. The bits of information are gathered by a third-party source from whispers inside the industry. At press time, these rumors remain unconfirmed and are printed for entertainment value only. Accordingly, the staff and associates of Amazing Computing cannot be held responsible for the reports made in this column.]

Raising The Titanic?

While the Bandito has been monitoring the air-sea distress frequencies, precious little information about the efforts to raise the hulk of Commodore have been broadcast. Some coded transmissions have been intercepted, however, and some information can be gleaned. As of this writing, the fate of Commodore and (more importantly) the Amiga remains undecided.

Supposedly cash bids had to be on the table by July 15, and then the evaluation began. The process is still continuing, and delays are rampant. From what whispers are about, it seems that some of the bidders were given extra time to come up with the cash bond to go along with their bid. The trustees set a deadline to weed out the serious bidders from the fan boys; all bids to purchase Commodore's holdings had to be received in writing and with hefty cash deposits by July 15th. This made things difficult, because it turns out that the bidders with the most serious interest in all of Commodore's assets (who also wanted to revive the Amiga) were the bidders with

the least financial resources. So the trustees granted them some extra time to make up their bids.

Apparently some bids are (as the Bandito had heard earlier) consortiums that combined forces in order to get various pieces of the pie. In fact, some of the Bandito's informants claim that a couple of the weaker bidders are thinking of combining forces; notably, CEI and Commodore UK may join their bids to present a united front. Don't get all excited about this concept, though, because it's certainly not confirmed. But you can be sure that CEI would look for ways to work with Commodore UK if C-UK won the bid.

Several of the half dozen interested parties have expressed their intention of resuming production and distribution of current Amiga systems (the A4000, A1200 and CD32) and the development of new Amiga technology. Of course, the exact timetable of such production and development is still entirely theoretical at this point. Certainly producing current Amiga models shouldn't be too difficult, given sufficient capital. Developing new Amigas is not so simple, though.

One important point: we still have no clear idea of where the various pieces of Amiga technology will end up. Will they be held by one company, or sold off piecemeal? Will Amiga technology be licensed to all interested parties, or closely held by one company? All of this is still up in the air. The Bandito suspects, though, that the company who ends up with the Amiga

technology won't be too shy about making money from it through licensing. After all, whoever starts producing Amigas again will doubtless need all the capital they can get their hands on. Have you looked at the price of television advertising lately?

Some of the bidders were getting very frustrated by the process. Though that may be because most of them were looking for extreme fire sale prices, and they were disappointed because the trustees wouldn't give away the company for a song. Nice try, guys. Why don't you go over and see if Atari's for sale yet?

Samsung Blues

The company that had long led the rumor parade as the purported best chance for the Amiga was Samsung. Well, the Bandito feels that was more wishful thinking than actual information. According to what the Bandito has heard, the actual Samsung bid was under \$2 million. Not a very serious bid, if that's indeed the case. The Bandito has heard that Samsung is bidding even less now than it was when the process started. Maybe the true answer lies in another tidbit of information the Bandito came across.

It seems that Samsung was never interested in making and selling Amigas. Their interest (such as it was) lay in various pieces of the Amiga technology, specifically the AGA chip set. This would explain why their bid was so low; Samsung was only interested in one small piece of the pie, so they didn't feel they had to bid as if they

AGA+M2

Enhanced!

Workbench 3 and Updated Compiler

The Benchmark WB3 Interface provides complete Workbench 3.0 and 3.1 support, including AGA Support, AREXX, GadTools, BOOPSI, ASL, IFFParse, Example Programs, and an Updated Compiler.

Updated compiler features include 68020 code generation and direct support for IEEE single and double precision math.

Benchmark Modula-2 (including WB2 or WB3) sells for \$200. WB2 or WB3 is \$125. WB3 upgrade from WB2 is only \$25. Shipping is extra. Please contact us for exact charges.

We're offering special discounts on upgrades to Benchmark for other Modula-2 users. Call or write for our free catalog.

Money-back guarantee on all Armadillo Computing products.

Armadillo Computing

5225 Marymount Drive, Austin, Texas 78723

Phone/Fax: 01-512/926-0360 Internet: jolinger@bix.com

Still Supporting the Amiga!

The Context Bible

Fast - Concordance. Every word indexed. AND, OR, NOT, XOR. Outputs with or without text to screen, file, or printer. 512K RAM. NIV.

Flexible - Hypertext. Add virtually unlimited notes, marking, instant-jump cross references. NIV, KJV. Plus commentaries. 1 M RAM. Includes Thinker hypertext/outline-word processor/database program. Write sermons, commentaries, or a reference Bible.

Call/write for free Demo disk and brochure. Unlimited 800# support. 2 year money-back guarantee.

Neuralink (800)657-8822

P.O. Box 16311, Lubbock, TX 79490 USA

Circle 106 on Reader Service card.



NEW one hour instructional video
by D. L. Richardson
FRACTAL FREEDOM . . \$35

Also available

ANIMATION 101 \$25
Or get both for only . . . \$50

MYRIAD VISUAL ADVENTURES

1219 N.W. 79th Street
Oklahoma City, OK 73114



Circle 103 on Reader Service card.

wanted the whole thing. Still, in the Bandito's view \$2 million is an awfully small price for something as important as the AGA chip set.

Anyway, the point seems to be moot now, as the latest data indicates that Samsung has pulled out of the process. They may be pursued by the trustees, begging them to reconsider and submit a real offer for all of Commodore's assets. Then again, maybe not. The trustees surely have better candidates to deal with, and they shouldn't waste their time on a reluctant suitor.

Message Found In A Bottle

Here's an anecdote that's both amusing and depressing at the same time. One of the Bandito's well-placed informants passes along the word that the trustees for Commodore have actually sent a package of materials about the company to prospective bidders. No, this isn't to companies who have expressed an interest; this is to some people that the trustees *hoped* would be interested. Even more interestingly, this happened well after the bidding was already under way. Hmmm, makes the Bandito think that the trustees were rather desperate to find someone who could offer a reasonable bid, don't you agree?

But even more fascinating than the very fact of this package being sent were the contents thereof. All sorts of info was included, such as the exact disposition of all assets and purported product plans. There were reams of spreadsheets, charts, graphs, and piles of documents. (No doubt, all generated on Amigas... hah. Just kidding. These accountant types no doubt use PC clones.) There were lots of juicy nuggets buried deep within the mass of raw, untreated data. Like this one:

According to this package, Commodore was planning the oft-rumored AAA Amiga using the Hewlett-Packard PA-RISC chip by the beginning of 1995. This is presented as a work in progress, which the savvy buyer could no doubt just step in and complete with a minimum of fuss and bother. Unfortunately, the document doesn't appear to state on which planet or alternative universe this hardware exists, because it sure doesn't exist anywhere in our corner of the space-time continuum. These guys must have had a few too many Bacardi 151's down by the beach in the Bahamas. Or perhaps their minds were clouded by staring too long at the amount of compensation Mehdi Ali earned for driving a billion-dollar company straight into bankruptcy.

Whatever the excuse, it's clear this document bears little relation to life on Earth as we know it. (You'd almost think it was written by a Congressman.) It's possible that a new hardware design could be thrown together in less than a year, though by all accounts no such design with a PA-RISC processor had actually been worked on. Except for the minor annoying fact that the AAA chip set was not complete, and by the best estimates of Commodore's chief engineers, it would take another 12 to 18 months to debug it and get it ready for manufacturing (at a cost of several million dollars). Oh, and then there's the little matter of software. Either AmigaDOS would have to be completely rewritten to work on the PA-RISC chip, or an emulation routine would have to be written. Either task would take a top-flight team of software engineers a couple of years to complete. Again, no such project was under way.

So if the rest of the data in the package is as reliable as this claim, you might begin to understand why the trustees haven't managed to unload the assets yet. Anybody who does even a modicum of fact-checking would find that the prospectus has more holes than Commodore's marketing strategy. Let's hope the eventual winners of the bidding war have enough sense to sort out the truth from the fiction.

Setting A New Course

The latest rumor has it that the Commodore UK bid has been accepted, though this is not as yet confirmed. (The Bandito expects that this means that C-UK is the leading contender right now, but of course there's a million different ways a complex deal like this one can fall through.) (*Editors note: It was a rumor and at press time, no new information is available.*) From the scuttlebutt, the intent of the UK crew (led by David Pleasance) is to start producing the entire Amiga line once again, possibly before the end of the year. Of course, one might reasonably suppose that their first focus would be the UK market, where they are based. But it's certainly true that the best market for the A4000 is the United States, where Toasters are eagerly awaiting Amigas to fit into.

Now, this would certainly solve the problem of the Amiga in the short term, by making available some machines. But this isn't like waving a magic wand and restoring the Amiga to life. It's a fact that a lot of Amiga distributors and retailers have already left the market, and they are unlikely to return. If you thought it was

hard before to get hardware and software for your Amiga, it'll be even more difficult. This is not going to expand market share, folks. The new Amiga maker's challenge (whoever it might be) is to convince retailers (either mom and pop stores or mass-market chains) to carry Amigas, and this is a big challenge.

Some minor changes to the Amiga product line would help. Drop a 68030 chip in the A1200, or even a 68LC040, and make sure that there's a hard drive in every unit sold, and keep the price under \$600 (total system with monitor, bundled software and printer should be under \$1000 out the door). There's a machine that would sell some units.

For the A4000, drop the price substantially. The A4000/030 should be less than \$1000, and the A4000/040 should be less than \$1500 (those would be complete system prices). CD32 should be hitting \$250, and trying for under \$200 as soon as possible. And the new owner needs to create retail outlets for all of the Amigas; given the past experiences of retailers with Amigas, this is a tall order.

Most importantly, you have to define a future for the Amiga and then make it happen. Unfortunately, this is the toughest job of all, requiring a lot of guts and capital and talent. What form should an Amiga 5000 take? The Bandito has heard a lot of speculation. It seems like the most achievable design is to use a 68060 as the CPU, and either use AGA chips or pick up one of the latest, hottest SVGA chip sets (with accelerated graphics, including a blitter) and rewrite the OS for that. Throw in a DSP for 16 bit audio and other useful processing functions, and a Fast and Wide SCSI-II interface for screaming hard drive performance. The toughest part is the software engineering; that could take up to a year even with a crash effort of experienced Amiga geniuses.

Even then, all such an Amiga 5000 would do is buy you some time while you work on the Amiga 6000 and its OS support. This machine would be based around a RISC chip (perhaps the PowerPC), an even better graphics chip set and DSP support, and the OS would have to be recoded along the lines of what Apple has done (including full emulation of the previous OS for software compatibility). The challenge would be to get this done in a reasonable time frame and get software developers to write to it. Perhaps using the PowerPC would help, since many applications are being coded for it already.

Some have suggested that the answer is to use an existing operating system, such as Windows NT or OS/2. Leaving aside aesthetic comments (such as you really wouldn't let your ugliest, smelliest dog sit on the Windows interface, let alone use it), if you don't use AmigaDOS, are you really using an Amiga? The answer is no; the operating system is really what makes the computer sing (literally, in the case of the Amiga). What good are a few custom chips if you have to go through Windows to get to them, and none of the programs take advantage of them?

In any case, the effort to move AmigaDOS to another processor would require millions in R&D. Can it happen? Will the new Amiga owner have the deep pockets necessary to make this happen? We'll just have to wait and see.

NewTek News

Those of you who are familiar with the elasticity of product release deadlines in the high-tech business will not be at all surprised to learn that NewTek's Flyer (the "Tapeless Editor" that works with the Video Toaster) has been delayed. Initially NewTek planned to release it in the summer, but obviously that date has gone

to the great Release Date Graveyard rumored to be somewhere in Seattle, Washington (conveniently close to Microsoft headquarters). What's the latest word? It looks like the beta version won't go out to dealers until November or December; when those arrive, production models should be expected within six to eight weeks.

LOOK!

AMIGA COMPATIBLE MITSUBISHI COLOR MONITORS



Diamond Scan 20A \$695.00

CRT Size:	20"/19"View
Resolution:	1024 x 768 I 800 x 600 NI
Scan Frequency:	15.7-38kHz H 45-80Hz V
Control Panel:	Analog



Diamond Scan 20C \$795.00

CRT Size:	20"/19"View
Resolution:	1024 x 768 I 800 x 600 NI
Scan Frequency:	15.7-38kHz H 50-90Hz V
Control Panel:	Digital

• 30 DAY MONEY BACK GUARANTEE
• OTHER PRODUCTS AVAILABLE
• LIMITED QUANTITY
• CALL TODAY!

The Video Works

25 Beta Ct # N, San Ramon, CA 94583 / Phone: 800-838-1031 / Fax: 510-838-0689




Circle 110 on Reader Service card.

Scientific Amigan

Scientific Amigan provides articles and software to enhance research, analysis, and design with the Amiga.

- Expert columns and reviews
- Internet tips and sources
- Technical publishing
- Disk and reprint library
- Two library disks w/ subscription
- Sample issue \$2

Annual Subscription: \$39 U.S.
Add \$10 for Foreign Delivery
MasterCard/Visa Accepted

(912) 352-1866, 9-4 Eastern
POB 60685, Dept. AZ
Savannah, GA 31420-0685

Circle 112 on Reader Service card.

VideoStage ProTM

Low-cost, Full-featured Interactive Authoring System

VideoStage Pro sports dozens of features not found on any other authoring system. An easy-to-use interface, wide variety of professional quality transitions, timeline view and niceties such as automatic checking for video "hot colors" make creating animated titles and syncing sound to graphics and animations a snap. Over 60 transitions, backdrops, fonts and button brushes give you the tools to get you started today! Plus use any of your own IFF or Anim 5 files. Support for several sound formats including AudioMaster and MODS. Create stand-alone kiosks or add remote control feature of VideoStage Pro + and remotely manage multiple kiosks via modem or networks plus scheduled show play and more!

"Video Stage Pro is clear and very easy to get the hang of. It's probably easier to use than the Workbench."

"VideoStage Pro can be used on so many different levels. You can create snazzy logos for your home videos, or produce professional presentations" **Amiga Format March 1994**

VideoStage Pro \$179.95 MSRP VideoStage Pro + \$499.95 MSRP

Upgrades from VideoTitrer or ANIMagic to VideoStage Pro available

Distributed in Canada by
Info Touch Systems, Inc.
#105-13483 78th Ave.
Surrey, BC V3W 2Y2
Phone: 604-572-4636

Published by Oxxi, Inc.
PO Box 90309
Long Beach, CA 90809
Phone: 310-427-1227
FAX: 310-427-0971



Circle 159 on Reader Service card.

Why the delay? Problems with the availability of key parts are a contributing factor, along with (as you might expect) those pesky engineering problems (AKA bugs). Along the way, NewTek has raised the price tag to \$4995 (a \$1000 increase). Also, you'll have to buy special hard drives from NewTek (two 1.7 gig drives) and that brings the cost up to \$8000. Not bad for a non-linear editing system, but still a hefty hit on your wallet. There won't be many casual hobbyists picking this up, says the Bandito. Forget about editing those videos of your last party, unless you've got a lot of money burning a hole in your budget.

You also have to wonder how many Flyers can be sold as long as there are no new Amigas to put them in. Sure, there's an installed base of Toaster owners, and certainly many of them are interested in non-linear editing solutions (particularly with the Flyer's attractive price-performance compared to other non-linear systems). But once you've taken care of demand from the installed base, you're left with sales to new owners. And there won't be many of those until such time as new Amiga 4000's are being offered for sale in the US. And that may not happen until 1995, or indeed it may never happen.

Perhaps with these considerations weighing on their minds, NewTek has

announced that the premier jewel in the Video Toaster's crown is being made available on other platforms. Yes, Lightwave 4.0 has been announced not only for the Amiga, but also for Windows/Windows NT and SGI machines. When will these new versions be out? The best estimates say early 1995, and just coincidentally all versions of Lightwave will be priced at \$995.

The interface and features of Lightwave will be as identical as possible on all platforms. This has occasioned a great deal of excitement among Lightwave fans, especially among power users who depend on Lightwave for broadcast production. Why the excitement? Because when these new versions of Lightwave ship, these power users will be able to get a lot more rendering power than an Amiga can provide, and they also don't have to worry about whether or not Amigas will be around any longer.

At the same time as this announcement, Tim Jenison stated that the Toaster is not in development for any other platform. So if the Amiga fails to revive, then essentially NewTek becomes the Lightwave company. After all, even with the Flyer there are only so many Video Toaster owners to sell it to. And according to reports, the Flyer is also not under

development for any other platform. Oh, sure, there are a lot of Toasters out there already. But how many of them are going to want to take an \$8,000 flyer on a Flyer when there is no way to get a replacement Amiga if their computer breaks? This is a significant problem.

And the unbundling of Lightwave isn't going to help Toaster sales any. In fact, if indeed any Toasters are selling right now in the absence of new Amigas, the very announcement of Lightwave's availability on other platforms will no doubt cut into their remaining sales. Many owners consider the Toaster to be merely a dongle that lets them run Lightwave (a fact that explains the existence of LightRave). Foundation Imaging, the company that does all the Babylon 5 graphics using Lightwave (and not incidentally owns dozens of Toasters) is already planning to switch over to PCs or SGI machines. Other heavy-duty Lightwave users can be expected to do the same thing. While this is good news for NewTek (because they'll sell more software), it's not great news for the professional Amiga market. One of the more important reasons to buy an Amiga — Lightwave — is no longer a reason to buy an Amiga.

The Video Toaster is still an important reason to buy an Amiga (if you could buy an Amiga, that is). But the rest of the market isn't standing still; other products are threatening the Toaster's spot as king of inexpensive video production. FAST has a new low-cost Video Machine for well under \$1000, and their higher-end solutions for \$4000 (Mac and PC) are getting better. And there will be more competition, you can bet on that. The Toaster may need to move to another platform for its long-term survival, if the Amiga isn't being sold any more. And even if the Toaster does make the move, it'll be in for a tough fight. Other companies will have been in the PC market for some time, and they'll be occupying the high ground. NewTek had better buy more ammunition...

•AC•

Pssst!

Become a professional tattle-tale. Send rumors, tidbits, and other gossip to:

The Bandito
c/o Amazing Computing
P.O. Box 2140
Fall River, MA 02722-2140

Front Ending C

by Randy Finch

Create an interface for your C programs with an easy-to-use authoring tool.

As many of you know, C is a very good higher level language for writing speedy applications. Typically, however, there are just a few places within the program code where this speed is critical, i.e. important from the user perspective. Usually, handling input from the user through an application's interface is not one of these critical points. One then might ask, "Could I build the interface using an interactive authoring tool such as HELM or CanDo, write the speed critical parts in C, and then combine the two?" The logic behind this is that an interface is easier to build with an authoring tool than with C. Even if an interface creation tool kit that writes C code for you is used, it is sometimes confusing adding the event handling. In this article, I show you one way an authoring tool can be used to build a front end to a speed critical C application. There are not many applications that are as floating point math intensive as those that plot the Mandelbrot set and Julia sets. I wrote the core calculations for such an application in SAS/C 6.50 and then added a user interface designed in CanDo 2.51. To point out the speed advantages of writing the calculations in C as opposed to CanDo's scripting language, I have also written the calculations in CanDo so a speed comparison can be done.

The Mandelbrot Set and Julia Sets

For those of you unfamiliar with the Mandelbrot set and Julia sets (where have you been the last 10 years, under a rock?), I now give a brief explanation. The Mandelbrot set is a mathematical entity known as a fractal. It can be defined semi-formally as the set of all points, c_i , in the complex plane such that the value of z in the iteration formula $z_{n+1} = z_n^2 + c_i$ remains bounded as n approaches infinity for an initial value of z (z_0) of $0+0i$. It can be shown that if the distance of z from the origin ever exceeds two, then the value of z approaches infinity as n approaches infinity and is therefore not bounded.

Julia sets are fractals also and are similar to the Mandelbrot set. However, there are an infinite number of Julia sets whereas there is only one Mandelbrot set. There is one Julia set for each value of c_i in the complex plane. The Julia set for a particular value of c_i is the set of all points, z , in the complex plane such that the

value of z in the iteration formula $z_{n+1} = z_n^2 + c_i$ remains bounded as n approaches infinity.

Well, so much for definitions. If you have seen any Mandelbrot or Julia set plots, you know that the points that make up the set are usually not the main point of interest; the points immediately surrounding the set are. Typically, the points belonging to the set are all one color and the points nearby are colored differently based on the number of iterations necessary to cause the distance of the point z from the origin to exceed two. This results in an image like that shown in Figure 1, which is the Mandelbrot set. Since the criteria for ceasing the iterations of the equation is that the distance of the point from the origin be greater than two, the image consists of a circle of radius two with inner distorted circles of decreasing radius. As the number of iterations approaches infinity, the distorted circles approach the shape of the outline of the Mandelbrot set. The same holds true for Julia sets. Of course, any program that actually carried the iterations to infinity would never end; therefore, a limit is specified. The number of iterations it takes to cause the distance of z from the origin to exceed two is known as the dwell of the point c_i (z for a Julia set). The iteration limit is known as the maximum dwell or dwell limit. All points that allow the equation to be iterated the number of times specified by the maximum dwell are assumed to be a member of the Mandelbrot or Julia set being calculated. My program, CanDoMJ, allows the user to set the maximum dwell at either 15, 31, 63, or 127 via a menu selection. The larger this value is, the more accurate the plot will be but the longer it will take to calculate points close to and in the set. Let's now take a look at the CanDoMJ program. It is shown in Listing 1.

The CanDoMJ Deck

The CanDoMJ deck consists of two cards: MJSettings and MJPlotPic. The former is the main user interface where various settings related to the type of plot to generate can be entered. This card is the first to appear when the program begins execution. The latter is used for actually plotting the Mandelbrot or Julia set.

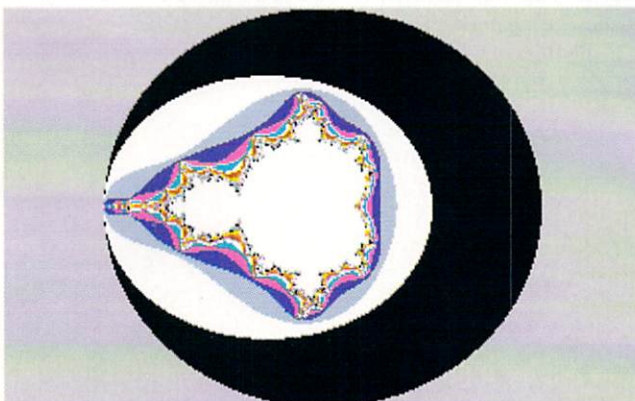


Figure 1. Mandelbrot Set (Max Dwell=31)

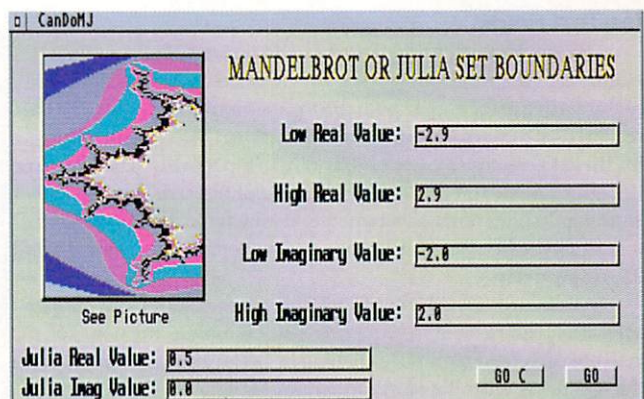


Figure 2. CanDoMJ User Interface (MJSettings Card)

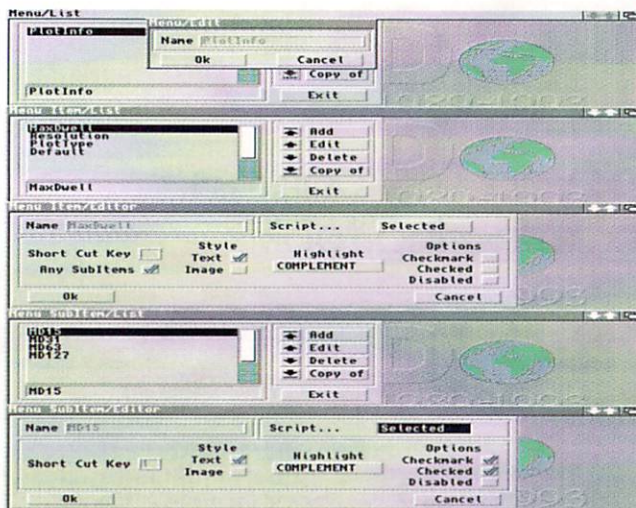


Figure 3 (left). Menu creation requester hierarchy in CanDo.
Figure 4 (above). Julia Set with Resolution=4.

The MJSettings Card

This card is shown in Figure 2. It consists of six text fields, one image button, two text buttons, and one menu containing four menu items. Some of these items also have sub items associated with them. The card also has BeforeAttachment and AfterAttachment scripts as well as a local routine named DrawMJPic.

The BeforeAttachment Script for the MJSettings Card

This script executes just before the card is displayed. It checks to see if this is the first time the script has been executed (Invocation=0; all uninitialized variables default to a value of zero) and, if it is, sets default values for the maximum dwell, plot resolution, and plot type. These defaults can be changed via menu selections. The value of Invocation is set to one so these defaults will not be set again while the program is running.

The AfterAttachment Script for the MJSettings Card

This script first removes the check mark from all menu sub items and then adds a check mark to the appropriate sub items as determined by the current values of MaxDwell, Resolution, and PlotType. This is necessary since CanDo automatically puts check marks on the sub items with their Checked property set at design time. Next, the value of the first argument passed to the card, Arg1, is checked. If it is equal to "Reset", the six text fields are filled in with the current values of six variables. If this is not done, CanDo will automatically fill in the fields with the default values specified at design time. Finally, all of the text for the card (see Figure 2) is displayed.

The Text Fields

The six text fields are named LowReal, HighReal, LowImag, HighImag, JReal, and JImag. The first four fields (on the right side of the card) are for entering floating point numbers that define the rectangular plot region on the complex plane. The default values for these fields are -2.9, 2.9, -2.0, and 2.0, respectively. The JReal and JImag text fields (on the lower left corner of the card) are for entering floating point numbers that define the complex value, ci , that is used when plotting a Julia set. The default values are 0.5 and 0.0, respectively.

All six text fields have an OnRelease event script that simply activates the next field in sequence. This eliminates the need to activate each field by mouse clicking between entries. Be aware that the text fields will allow any alphanumeric character to be entered into the field. It would be nice if INOVATronics would add a masked input field object to CanDo or, more preferably, provide a

KeyPress event for field objects. The latter feature would allow a script to be executed each time the user presses a key while entering text into a field. This would allow programmer filtering of user input.

The Image and Text Buttons

The image button is named SeeMJPic and appears on the left side of the card. Clicking on the button causes the last generated plot to be displayed. The image for this button is a brush named CanDoMJPic.br. The OnRelease script for this button executes the routine DrawMJPic, passing the argument "SEE" to it.

The two text buttons are named GOC and GO. They appear in the lower right corner of the card. The former is used to generate a plot by calling a C program; the latter is used to generate the same plot using CanDo code. The OnRelease scripts for these buttons execute the DrawMJPic routine, passing arguments of "GOC" and "GO", respectively.

The DrawMJPic Routine

This routine extracts the text from each text field on the card and assigns their values to six appropriately named global variables. It then activates the MJPlotPic card, passing to it the argument that was passed to the routine itself. The content of the fields must be assigned to variables because the MJPlotPic card knows nothing of the fields on the MJSettings card but can access global variables.

The PlotInfo Menu

The MJSettings card has one menu structure named PlotInfo that contains four menu items. Some of the menu items have sub items. The menu structure looks like this:

PlotInfo	
Max Dwell	
15	
31	
63	
127	
Resolution	
1	
2	
4	
8	
Plot Type	
Mandelbrot	
Julia	
Default Settings	

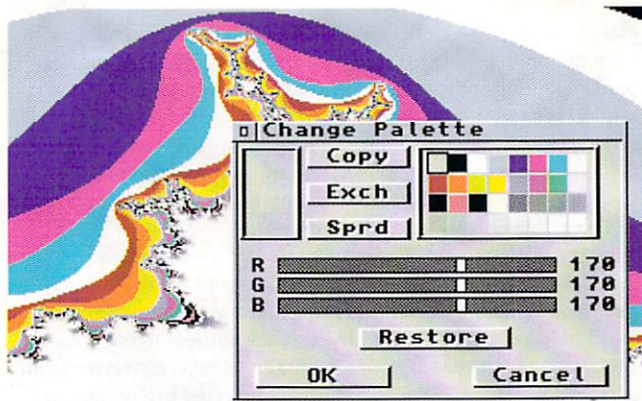


Figure 5. MJPlotPic Card with Change Palette Requester



Figure 6. Julia Set (Max Dwell=63, $c_i = -0.75 + 0.1i$)

Each selectable menu item or sub item has a shortcut key associated with it. They are shown in the definition sections of the menu objects in Listing 1.

The menu sub items under Max Dwell are mutually exclusive; only one item can be active at a time. A check mark appears next to the selected value. However, CanDo does not automatically handle mutually exclusive menu sub items. It will check the selected item, but it will not remove the check mark from any of the other items. This must be done by the programmer. As you can see from the Occurred scripts of the sub items (named MD15, MD31, MD63, and MD127), not only is the value of MaxDwell set, but the non-selected sub items have their check marks removed using the SetObjectState command. The same procedure is used by the sub items for Resolution and Plot Type. For the check marks to appear and disappear properly, be sure that the Checkmark property of the sub items are set at design time (see Figure 3).

The definition of maximum dwell has already been given and will not be discussed further. The meaning of plot type is obvious. So, let's discuss resolution.

The value of Resolution can be 1, 2, 4, or 8. When the value of Resolution is N, then an NxN pixel area will be drawn on screen for each calculated point in the Mandelbrot or Julia set. Thus, if Resolution is equal to 4, a 4x4 block of pixels will be colored for each calculated point. This allows rough but quick plots to be generated before actually plotting with a resolution of 1. Figure 4 shows a Julia set plot with a resolution of 4.

When the Default Settings menu item is selected, the text fields containing the plot range and c_i value are set to their default values. This is accomplished by reactivating the MJSettings card without passing the "Reset" argument (see earlier discussion of the AfterAttachment script).

When creating a menu structure in CanDo, several levels of requesters must be filled in to create the menu items and sub items. These different requesters are shown together in Figure 3. Stepping through these requesters when creating a complex menu structure can be confusing. I would like to see these requesters combined into one well thought out requester.

The MJPlotPic Card

This card consists of a 320x200 32-color window with no system window objects. Thus, the card appears totally blank. However, the card does have one area button named NewRange and one menu structure named Options. The card also has an AfterAttachment script.

The AfterAttachment Script for the MJPlotPic Card

This script first checks the value of Arg1. If it is equal to "GO", a plot is generated with CanDo code. If it is equal to "GOC", a plot is generated using the C program, CanDoMJC. If it is equal to "SEE", the last generated plot is displayed.

If CanDo code is to be used to generate a plot, several variables are initialized, and either a Mandelbrot set or a Julia set plot is created depending on the value of PlotType. I leave it to you to follow through the code and see how it implements the formulas given at the beginning of this article. Several references are also given at the end of this article.

If the C program, CanDoMJC, is to be used to generate a plot, an AmigaDOS command line string is built up using several string concatenation operations and then executed using the Dos command. The final command will look something like this:

```
RCF:C_Progs/CanDoMJC/CanDoMJC 3811064 31 2 -2.9 2.9 -2.0 2.0
J -0.5 0.0
```

The zeroth parameter (as viewed by the C program) is the path and filename of the C program. The first parameter is the memory address of the Window data structure for the MJPlotPic card. This address is available through the CanDo system variable, WindowAddress. The second and third parameters are the values of MaxDwell and Resolution. The fourth through seventh parameters are the values representing the plot range. The eighth parameter is the plot type, M or J. Finally, the ninth and tenth parameters are the real and imaginary parts of the c_i value used in Julia set plots. The C program is described below.

If the user just wants to view the last generated plot, then the file ram:CanDoMJPic, which is used to store the last plot (see below), is loaded into the MJPic buffer and displayed. Be aware that if no plot has yet been generated, the file ram:CanDoMJPic will not exist. In this case, CanDo will automatically display a file requester so the user can make a selection. Also, if you use TheMultiBinder to create a tool from this deck, do not include CanDoMJPic during the binding process. If you do, TheMultiBinder will add the current picture in this file to the bound deck. This prevents the program from loading the file each time it is to be displayed, thus always showing the same picture.

The NewRange Area Button

This button allows the user to click the left mouse button at any location on the screen, drag out a rectangle, and then release the button. By doing so, a new plotting range is set based on the rectangle boundaries. The button is 320x200 pixels in size and has

no highlighting or border. Therefore, it covers the entire card and is invisible. The only reason for its existence is to detect mouse button clicks and movements. Neither the window object nor the card can handle mouse events. Thus, the entire card has to be covered with an invisible area button. The button has three scripts to allow it to function properly: `OnClick`, `OnDrag`, and `OnRelease`. `OnClick` executes when the left mouse button is pressed, `OnDrag` executes as the mouse is moved about while continuing to hold down the left mouse button, and `OnRelease` executes when the left mouse button is released.

The `OnClick` script determines the current location of the mouse from the system variables `MouseX` and `MouseY`. Also, the width and height of the rectangle are set to zero, the draw mode is set to `COMPLEMENT`, and an initial rectangle is drawn. As the mouse is moved, the `OnDrag` script executes over and over. It first draws another rectangle over top of the previously drawn rectangle. Since the draw mode is `COMPLEMENT`, this causes the previous rectangle to disappear. Next, the rectangle width and height are updated and another rectangle is drawn. This gives the appearance on screen that the rectangle is elastic and is stretching to match the mouse movements. This continues until the left mouse button is released. The `OnRelease` script first draws one final rectangle to erase the last one drawn. It then updates the real and imaginary plot ranges based on the boundaries of the rectangle. Next, the current picture is moved into buffer `MJPic` and saved to file `ram:CanDoMJPic` so that it can be recalled later if needed. Finally, card `MJSettings` is activated, passing an argument of "Reset" so the plot boundary fields will be updated. Be aware that the code only provides for the rectangle to be drawn from upper left to lower right. Trying to create the rectangle any other way will cause high and low values to be interchanged, thus producing upside down and backward plots.

The Options Menu

The `MJPlotPic` card has one menu structure named `Options` that contains three menu items. The menu structure looks like this:

```
Options
  Save Picture
  Set Colors
  To Settings
```

Each menu item has a shortcut key associated with it. They are shown in the definition sections of the menu objects in Listing 1.

When `Save Picture` is selected, a file requester is displayed, allowing the user to select a filename to which to save the current plot. This is useful if you would like to move the picture into a paint or image processing software package for modifications.

When `Set Colors` is selected, the `ChangePalette` card in the `ColorChange` deck is opened as a requester, allowing the user to modify the colors of the plot (see Figure 5). The `ColorChange` deck was described in another one of my articles (AC 9.5).

When `To Settings` is selected, the current plot is saved to the temporary file `ram:CanDoMJPic` for later recall, and the `MJSettings` card is activated.

The CanDoMJC C Program

This program consists of two source files: a header file named `CanDoMJC.h` and the main file named `CanDoMJC.c`. The former is shown in Listing 2, the latter in Listing 3.

`CanDoMJC.h`, which is `#included` by `CanDoMJC.c`, `#includes` several system header files, `#defines` some macro variables, and declares some useful structures. It also contains two functions for opening and closing the intuition and graphics system libraries.

`CanDoMJC.c` contains two functions in addition to the mandatory main function. The first is named `MJPlot`. It is used to

plot the requested Mandelbrot or Julia set. If you are familiar with C programming, you will see that the code is very similar to the `CanDo` plotting code in the `AfterAttachment` script for the `MJPlotPic` card. In fact, the algorithms are exactly the same and will produce identical plots for the same settings. The second additional function is named `SetComplexRange` and simply fills in a `ComplexRange` data structure with four floating point values passed as parameters to the function.

The main function declares several variables, calls the `OpenLibraries` function (see `CanDoMJC.h`), and then reads and converts all of the parameter strings passed to the program from the `CanDo` deck. The first parameter is the address of the `Window` data structure for the `MJPlotPic` card. The string is converted to an unsigned long integer which in turn is converted to a pointer to a `Window` data structure. With this address, the C program can draw directly on the `MJPlotPic` card. The remaining parameters are as described earlier and have their data types converted appropriately. Once the parameters are read (note that the last two parameters are only read if a Julia set plot is requested), the Mandelbrot or Julia set is plotted. Afterwards, the `CloseLibraries` function (see `CanDoMJC.h`) is called and the program ends.

The `CanDoMJC` program was compiled as shown in the listings with no errors or warnings using the SAS/C Development System Version 6.50. The compiler options were set such that the program uses the IEEE floating point libraries supplied with AmigaDOS. These are the same libraries used by `CanDo` for its floating point calculations. Thus the `CanDo` and C code are on equal footing when it comes to the actual floating point calculations. The difference in speed comes from the C code being compiled whereas the `CanDo` code is only semi-compiled. Also, `CanDo` spends time converting between data types whereas C uses variables with predetermined data types.

Speed Comparisons

As suspected, the C code generated plots quite a bit faster than did the `CanDo` code. The plot times discussed below apply to my Amiga 2000 with a 68030/68882 28MHz GVP accelerator card.

In general, the C code executed about 40-50 times faster than the `CanDo` code. For instance, the Mandelbrot set shown in Figure 1 (maximum dwell of 31) took 50 seconds to generate with the C code and 41 minutes to generate with `CanDo` code. The Julia set in Figure 6 (maximum dwell of 63) took 55 seconds in C and 38 minutes in `CanDo`. Thus, for floating point math intensive `CanDo` programs, it is advisable to write a C language support program to enhance the performance.

Other Front Ending Methods

`CanDoMJ` has a very simple link to its back end C program. It simply passes a window address along with some other numerical values to the C program. The C program does its thing and then exits. In other programs, there may need to be a two-way communication between the front end program and the C program. In this case, data could be transferred between programs via data files on the RAM: device. Or, if more sophisticated communications are needed, `ARexx` communications could be added to the C program. Of course, the authoring tool used for the front end would also need to support `ARexx` communications. `CanDo` does.

More Mandelbrot and Julia Set Information

If you have an interest in Mandelbrot or Julia sets, then you might want a subscription to *AMYGDALA*. This is a newsletter devoted to fractals, especially the Mandelbrot set, and is published by Rollo Silver, Box 219, San Cristobal, NM 85764. A 35mm slide supplement is also available.

There are many books on the market that discuss the Mandelbrot set, Julia sets, and fractals in general. Below is a list of several I own that you might find interesting.

Barnsley, Michael; *Fractals Everywhere*; Academic Press 1988.
 Barnsley, Michael F. and Hurd, Lyman P.; *Fractal Image Compression*; AK Peters 1993.
 Cvitanovic, Predrag; *Universality in Chaos*; Adam Hilger Ltd. 1984.
 Feder, Jens; *Fractals*; Plenum Press 1988.
 Gleick, James; *Chaos: Making a New Science*; Viking 1987.
 Mandelbrot, Benoit B.; *The Fractal Geometry of Nature*; W.H. Freeman & Co. 1983.
 Oliver, Dick; *FractalVision: Put Fractals to Work for You*; SAMS Publishing 1992.
 Peitgen, Heinz-Otto, Jurgens, Hartmut, and Saupe, Dietmar; *Fractals for the Classroom: Part1 Introduction to Fractals and Chaos*; Springer-Verlag 1992.
 Peitgen, H.-O. and Richter, P.H.; *The Beauty of Fractals*; Springer-Verlag 1986.
 Peitgen, H.-O. and Saupe, D.; *The Science of Fractal Images*; Springer-Verlag 1988.
 Sparrow, Colin; *The Lorenz Equations: Bifurcations, Chaos, and Strange Attractors*; Springer-Verlag 1982.
 Stevens, Roger T.; *Fractal Programming in C*; M&T Publishing, Inc. 1989.
 Thompson, J.M.T. and Stewart, H.B.; *Nonlinear Dynamics and Chaos*; John Wiley and Sons 1986.

Listings

Listing 1

Listing 1. CanDoMJ Deck

```
*****
* Deck "CanDoMJ"
* Time 15:36:09
* Date 03/05/94
*****

*****
* Card(s) in deck.
* Card "MJPlotPic"
* Card "MJSettings"
*****
* 2 Card(s), 2 were printed.
*****

*****
* Natural order of Cards
* Card "MJSettings"
* Card "MJPlotPic"
*****

*****
* There are no Global routines in this deck.
*****

*****
* Card "MJPlotPic"
  AfterAttachment ; used to be AfterStartup
  Nop ;Draw picture using CanDo code
  If Arg1="GO"
    SetDrawMode JAM2
    Let SR=(HR-LR)*Resolution/(WindowWidth-1)
    Let SI=(HI-LI)*Resolution/(WindowHeight-1)
    Let HC=WindowColors-1
    Let LC=0
    Nop ;Begin iterations
    Let X=0
    Let Y=0
    Let R=LR
    Let I=HI
    Nop ;Plot Mandelbrot set
```

```
If PlotType="M"
  While Y<WindowHeight
    While X<WindowWidth
      Let LoopR=0
      Let LoopI=0
      Let Count=0
      Loop
        Let Temp=LoopR*LoopR-LoopI*LoopI+R
        Let LoopI=2*LoopR*LoopI+I
        Let LoopR=Temp
        If (LoopR*LoopR+LoopI*LoopI)>4.0
          ExitLoop
        EndIf
        Let Count=Count+1
      Until Count>=MaxDwell
      SetPen Count
      If Resolution=1
        DrawPixel X,Y
      Else
        AreaRectangle X,Y,Resolution,Resolution
      EndIf
      Let X=X+Resolution
      Let R=R+SR
    EndLoop
    Let X=0
    Let R=LR
    Let Y=Y+Resolution
    Let I=I-SI
  EndLoop
Nop ;Plot Julia set
ElseIf PlotType="J"
  While Y<WindowHeight
    While X<WindowWidth
      Let LoopR=R
      Let LoopI=I
      Let Count=0
      Loop
        If (LoopR*LoopR+LoopI*LoopI)>4.0
          ExitLoop
        EndIf
        Let Count=Count+1
        Let Temp=LoopR*LoopR-LoopI*LoopI+JR
        Let LoopI=2*LoopR*LoopI+JI
        Let LoopR=Temp
      Until Count>=MaxDwell
      SetPen Count
      If Resolution=1
        DrawPixel X,Y
      Else
        AreaRectangle X,Y,Resolution,Resolution
      EndIf
      Let X=X+Resolution
      Let R=R+SR
    EndLoop
    Let X=0
    Let R=LR
    Let Y=Y+Resolution
    Let I=I-SI
  EndLoop
EndIf
Nop ;Draw picture using C code
ElseIf Arg1="GOC"
  Let Command="RCF:C_Progs/CanDoMJC/CanDoMJC "
  Let Command=Command||WindowAddress||" "
  Let Command=Command||MaxDwell||" "
  Let Command=Command||Resolution||" "
  Let Command=Command||LR||" "||HR||" "||LI||" "||HI||" "
  Let Command=Command||PlotType||" "
  Let Command=Command||JR||" "||JI
  Dos Command
ElseIf Arg1="SEE"
  LoadPicture "ram:CanDoMJPic","MJPic"
  ShowPicture "MJPic"
EndIf
EndScript
Window "UserWindow"
  Definition
    Origin 0,0
    Size 320,200
    Title ""
    NumberOfColors 32,69632
    WindowColors 0,1,0 ; Detail, Block, Background
    WindowObjects NONE
    WindowFlags ACTIVATE BORDERLESS SEPARATESCREEN TOFRONT
  EndScript
  OnCloseButton
    Quit
  EndScript
EndObject
AreaButton "NewRange"
  Definition
    Origin 0,0
    Size 320,200
    Border NONE ,2,1 ; BorderStyle, MainPen, ExtraPen
    Highlight NONE
```



```

ButtonFlags NONE
EndScript
OnClick
  Let BeginX=MouseX
  Let BeginY=MouseY
  Let CurrW=0
  Let CurrH=0
  SetDrawMode COMPLEMENT
  DrawRectangle BeginX,BeginY,CurrW,CurrH
EndScript
OnDrag
  If MouseX<>(CurrW+BeginX) or MouseY<>(CurrH+BeginY)
    DrawRectangle BeginX,BeginY,CurrW,CurrH
    Let CurrW=MouseX-BeginX
    Let CurrH=MouseY-BeginY
    DrawRectangle BeginX,BeginY,CurrW,CurrH
  EndIf
EndScript
OnRelease
  DrawRectangle BeginX,BeginY,CurrW,CurrH
  Let Temp=LR+(HR-LR)*(BeginX/(WindowWidth-1))
  Let HR=LR+(HR-LR)*(BeginX+CurrW)/(WindowWidth-1)
  Let LR=Temp
  Let Temp=HI-(HI-LI)*(BeginY+CurrH)/(WindowHeight-1)
  Let HI=HI-(HI-LI)*(BeginY)/(WindowHeight-1)
  Let LI=Temp
  ClipPicture "MJPic"
  SavePicture "MJPic","ram:CanDoMJPic"
  GotoCard "MJSettings","Reset"
EndScript
EndObject
TextMenu "SavePic"
Definition
  AttachTo MENU,"Options"
  Font "topaz",8 ; FontName, PointSize
  PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
  TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
  Text " Save Picture "
  MenuFlags NONE
  Highlight COMPLEMENT
  ShortCutKey "S"
EndScript
Occurred
  Let FNNew=AskForFileName(FN,"Save Picture")
  If FNNew<>""
    Let FN=FNNew
    ClipPicture "MJPic"
    SavePicture "MJPic",FN
  EndIf
EndScript
EndObject
TextMenu "SetColors"
Definition
  AttachTo MENU,"Options"
  Font "topaz",8 ; FontName, PointSize
  PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
  TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
  Text " Set Colors "
  MenuFlags NONE
  Highlight COMPLEMENT
  ShortCutKey "C"
EndScript
Occurred
  LoadSubDeck "CanDo:Decks/ColorChange","CC"
  OpenRequester "CC","ChangePalette"
EndScript
EndObject
TextMenu "ToMJSettings"
Definition
  AttachTo MENU,"Options"
  Font "topaz",8 ; FontName, PointSize
  PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
  TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
  Text " To Settings "
  MenuFlags NONE
  Highlight COMPLEMENT
  ShortCutKey "T"
EndScript
Occurred
  ClipPicture "MJPic"
  SavePicture "MJPic","ram:CanDoMJPic"
  GotoCard "MJSettings","Reset"
EndScript
EndObject
* End of Card "MJPlotPic"
*****
* Card "MJSettings"
BeforeAttachment ; used to be OnStartup
  If Invocation=0
    Let MaxDwell=15
    Let Resolution=1
    Let PlotType="M"
  EndIf
  Let Invocation=1
EndScript
AfterAttachment ; used to be AfterStartup
  Nop ; Remove check mark from all menu subitems
  SetObjectState "MD15",OFF
  SetObjectState "MD31",OFF
  SetObjectState "MD63",OFF
  SetObjectState "MD127",OFF
  SetObjectState "RES1",OFF
  SetObjectState "RES2",OFF
  SetObjectState "RES4",OFF
  SetObjectState "RES8",OFF
  SetObjectState "Mandelbrot",OFF
  SetObjectState "Julia",OFF
  Nop ; Put check mark on appropriate menu subitems
  SetObjectState "MD"||MaxDwell,ON
  SetObjectState "RES"||Resolution,ON
  If PlotType="M"
    SetObjectState "Mandelbrot",ON
  Else
    SetObjectState "Julia",ON
  EndIf
  Nop ; Set text entries if they changed
  If Arg1="Reset"
    SetText "LowReal",LR
    SetText "HighReal",HR
    SetText "LowImag",LI
    SetText "HighImag",HI
    SetText "JReal",JR
    SetText "JImag",JI
  EndIf
  SetPrintFont "CGTimes",20
  SetPrintStyle EMBOSSSED,2,11
  SetPen 1,0
  SetDrawMode JAM1
  PrintText "MANDELBROT OR JULIA SET BOUNDARIES",220,18
  SetPrintFont "Pearl",11
  SetPrintStyle BOLD EMBOSSSED,2,6
  SetPen 1,0
  SetDrawMode JAM1
  PrintText " Low Real Value:",227,56
  PrintText " High Real Value:",227,86
  PrintText " Low Imaginary Value:",227,116
  PrintText " High Imaginary Value:",227,146
  PrintText "Julia Real Value:",12,168
  PrintText "Julia Imag Value:",12,183
  SetPrintFont "Pearl",8
  SetPrintStyle EMBOSSSED,2,3
  SetPen 1,0
  SetDrawMode JAM1
  PrintText "See Picture",73,149
EndScript
Routine "DrawMJPic"
  Let LR=TextFrom("LowReal")
  Let HR=TextFrom("HighReal")
  Let LI=TextFrom("LowImag")
  Let HI=TextFrom("HighImag")
  Let JR=TextFrom("JReal")
  Let JI=TextFrom("JImag")
  GotoCard "MJPlotPic",Arg1
EndScript
Window "UserWindow"
Definition
  Origin 0,0
  Size 640,200
  Title "CanDoMJ"
  NumberOfColors 16,102400
  WindowColors 0,1,0 ; Detail, Block, Background
  WindowObjects CLOSEBUTTON
  WindowFlags ACTIVATE SEPARATESCREEN TOFRONT
EndScript
OnCloseButton
  Quit
EndScript
EndObject
TextButton "Go"
Definition
  Origin 561,179
  Font "topaz",8 ; FontName, PointSize
  PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
  TextColors 1,0,NORMAL ; PenA, PenB, DrawMode
  Text " GO "
  Border BEVEL,2,1 ; BorderStyle, MainPen, ExtraPen
  Highlight COMPLEMENT
  ButtonFlags NONE
EndScript
OnRelease
  Do "DrawMJPic","GO"
EndScript
EndObject
TextField "LowReal"
Definition
  Origin 412,59
  Size 200,8
  Justification LEFT

```



```

MaxFieldLength 32
InitialText "-2.9"
Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen
EndScript
OnRelease
SetObjectState "HighReal",ON
EndScript
EndObject
TextField "HighReal"
Definition
Origin 412,89
Size 200,8
Justification LEFT
MaxFieldLength 32
InitialText "-2.9"
Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen
EndScript
OnRelease
SetObjectState "LowImag",ON
EndScript
EndObject
TextField "LowImag"
Definition
Origin 412,119
Size 200,8
Justification LEFT
MaxFieldLength 32
InitialText "-2.0"
Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen
EndScript
OnRelease
SetObjectState "HighImag",ON
EndScript
EndObject
TextField "HighImag"
Definition
Origin 412,149
Size 200,8
Justification LEFT
MaxFieldLength 32
InitialText "2.0"
Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen
EndScript
OnRelease
SetObjectState "JReal",ON
EndScript
EndObject
TextField "JImag"
Definition
Origin 161,186
Size 200,8
Justification LEFT
MaxFieldLength 32
InitialText "0.0"
Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen
EndScript
OnRelease
SetObjectState "LowReal",ON
EndScript
EndObject
TextField "JReal"
Definition
Origin 161,171
Size 200,8
Justification LEFT
MaxFieldLength 32
InitialText "0.5"
Border DOUBLEBEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen
EndScript
OnRelease
SetObjectState "JImag",ON
EndScript
EndObject
TextButton "GoC"
Definition
Origin 471,179
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 1,0,NORMAL ; PenA, PenB, DrawMode
Text " GO C "
Border BEVEL ,2,1 ; BorderStyle, MainPen, ExtraPen
Highlight COMPLEMENT
ButtonFlags NONE
EndScript
OnRelease
Do "DrawMJPic","GoC"
EndScript
EndObject
ImageButton "SeeMJPic"
Definition
Origin 28,19
Image "CanDo:Brushes/CanDoMJPicButton.br"
Highlight COMPLEMENT
ButtonFlags NONE
EndScript

```

```

OnRelease
Do "DrawMJPic","SEE"
EndScript
EndObject
TextMenu "MaxDwell"
Definition
AttachTo MENU , "PlotInfo"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text "Max Dwell"
MenuFlags NONE
Highlight COMPLEMENT
ShortCutKey ""
EndScript
EndObject
TextMenu "MD15"
Definition
AttachTo OBJECT , "MaxDwell"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " 15 "
MenuFlags CHECKABLE CHECKIT
Highlight COMPLEMENT
ShortCutKey "1"
EndScript
Occurred
Let MaxDwell=15
SetObjectState "MD31",OFF
SetObjectState "MD63",OFF
SetObjectState "MD127",OFF
EndScript
EndObject
TextMenu "MD31"
Definition
AttachTo OBJECT , "MaxDwell"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " 31 "
MenuFlags CHECKABLE
Highlight COMPLEMENT
ShortCutKey "2"
EndScript
Occurred
Let MaxDwell=31
SetObjectState "MD15",OFF
SetObjectState "MD63",OFF
SetObjectState "MD127",OFF
EndScript
EndObject
TextMenu "MD63"
Definition
AttachTo OBJECT , "MaxDwell"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " 63 "
MenuFlags CHECKABLE
Highlight COMPLEMENT
ShortCutKey "3"
EndScript
Occurred
Let MaxDwell=63
SetObjectState "MD15",OFF
SetObjectState "MD31",OFF
SetObjectState "MD127",OFF
EndScript
EndObject
TextMenu "MD127"
Definition
AttachTo OBJECT , "MaxDwell"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " 127 "
MenuFlags CHECKABLE
Highlight COMPLEMENT
ShortCutKey "4"
EndScript
Occurred
Let MaxDwell=127
SetObjectState "MD15",OFF
SetObjectState "MD31",OFF
SetObjectState "MD63",OFF
EndScript
EndObject
TextMenu "Resolution"
Definition
AttachTo MENU , "PlotInfo"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN ,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text "Resolution"

```



```

MenuFlags NONE
Highlight COMPLEMENT
ShortCutKey ""
EndScript
EndObject
TextMenu "RES1"
Definition
AttachTo OBJECT,"Resolution"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " 1 "
MenuFlags CHECKABLE CHECKIT
Highlight COMPLEMENT
ShortCutKey "5"
EndScript
Occurred
Let Resolution=1
SetObjectState "RES2",OFF
SetObjectState "RES4",OFF
SetObjectState "RES8",OFF
EndScript
EndObject
TextMenu "PlotType"
Definition
AttachTo MENU,"PlotInfo"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text "Plot Type"
MenuFlags NONE
Highlight COMPLEMENT
ShortCutKey ""
EndScript
EndObject
TextMenu "Mandelbrot"
Definition
AttachTo OBJECT,"PlotType"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " Mandelbrot "
MenuFlags CHECKABLE CHECKIT
Highlight COMPLEMENT
ShortCutKey "M"
EndScript
Occurred
Let PlotType="M"
SetObjectState "Julia",OFF
EndScript
EndObject
TextMenu "Julia"
Definition
AttachTo OBJECT,"PlotType"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " Julia "
MenuFlags CHECKABLE
Highlight COMPLEMENT
ShortCutKey "J"
EndScript
Occurred
Let PlotType="J"
SetObjectState "Mandelbrot",OFF
EndScript
EndObject
TextMenu "RES2"
Definition
AttachTo OBJECT,"Resolution"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " 2 "
MenuFlags CHECKABLE
Highlight COMPLEMENT
ShortCutKey "6"
EndScript
Occurred
Let Resolution=2
SetObjectState "RES1",OFF
SetObjectState "RES4",OFF
SetObjectState "RES8",OFF
EndScript
EndObject
TextMenu "RES4"
Definition
AttachTo OBJECT,"Resolution"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " 4 "
MenuFlags CHECKABLE
Highlight COMPLEMENT
ShortCutKey "7"

```

```

EndScript
Occurred
Let Resolution=4
SetObjectState "RES1",OFF
SetObjectState "RES2",OFF
SetObjectState "RES8",OFF
EndScript
EndObject
TextMenu "RES8"
Definition
AttachTo OBJECT,"Resolution"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text " 8 "
MenuFlags CHECKABLE
Highlight COMPLEMENT
ShortCutKey "8"
EndScript
Occurred
Let Resolution=8
SetObjectState "RES1",OFF
SetObjectState "RES2",OFF
SetObjectState "RES4",OFF
EndScript
EndObject
TextMenu "Default"
Definition
AttachTo MENU,"PlotInfo"
Font "topaz",8 ; FontName, PointSize
PrintStyle PLAIN,2,3 ; Style, Pen1, Pen2
TextColors 0,1,NORMAL ; PenA, PenB, DrawMode
Text "Default Settings"
MenuFlags NONE
Highlight COMPLEMENT
ShortCutKey "D"
EndScript
Occurred
GotoCard "MJSettings"
EndScript
EndObject
* End of Card "MJSettings"
*****

```

Listing 2

Listing 2. CanDoMJC.h Header File

```

/*----- INCLUDE FILES -----*/

#include <proto/exec.h>
#include <proto/intuition.h>
#include <proto/graphics.h>
#include <string.h>
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
#include <float.h>

/*----- DEFINES -----*/

#define MANDELBROT 0
#define JULIA 1

/*----- Structure Pointer Declarations -----*/

struct IntuitionBase *IntuitionBase;
struct GfxBase *GfxBase;

/*----- Structure Definitions -----*/

struct complex {
    DOUBLE r;
    DOUBLE i;
};

struct ComplexRange {
    DOUBLE rmin, rmax;
    DOUBLE imin, imax;
};

/*----- GENERAL FUNCTIONS -----*/

LONG OpenLibraries(void)
{
    IntuitionBase = (struct IntuitionBase *)
    OpenLibrary("intuition.library",33);
    if(!IntuitionBase) return FALSE;

    GfxBase = (struct GfxBase *) OpenLibrary("graphics.library",33);

```



```

if(!GfxBase) return FALSE;

return TRUE;
} /* OpenLibraries */

void CloseLibraries (void)
{
    if (IntuitionBase) CloseLibrary((struct Library *)IntuitionBase);
    if (GfxBase) CloseLibrary((struct Library *)GfxBase);
} /* CloseLibraries () */

```

Listing 3

Listing 3. CanDoMJC.c C Program

```

/*----- INCLUDE HEADER FILE -----*/

#include "CanDoMJC.h"

/*----- SUPPORT FUNCTIONS -----*/

void MJPlot(struct Window *w, WORD maxdwell, LONG scale,
            struct ComplexRange *cr, struct complex *jc, UBYTE type)
{
    struct RastPort *rp;
    struct complex c, z, zloop;
    struct IntuiMessage *message;
    WORD xstart=0, ystart=0, x, y, xend, yend;
    WORD count;
    DOUBLE rstep, istep, zrtemp;
    ULONG oldIDCMPFlags;

    rp = w->RPort;
    oldIDCMPFlags = w->IDCMPFlags;
    ModifyIDCMP(w, MOUSEBUTTONS);

    xend = 8*(rp->BitMap->BytesPerRow)-1;
    yend = (rp->BitMap->Rows)-1;
    rstep = (cr->rmax - cr->rmin)*scale/xend;
    istep = (cr->imax - cr->imin)*scale/yend;

    SetRast(rp,0);
    if (type == MANDELBROT) {
        for (c.i = cr->imax, y=ystart; y<=yend; c.i-=istep, y+=scale) {
            if (message = (struct IntuiMessage *)GetMsg(w->UserPort)) {
                ReplyMsg((struct Message *)message);
                break;
            } /* if */
            for (c.r = cr->rmin, x=xstart; x<=xend; c.r+=rstep,
                x+=scale) {
                zloop.r = zloop.i = 0.;
                count = 0;

                do {
                    zrtemp = zloop.r*zloop.r - zloop.i*zloop.i + c.r;
                    zloop.i = 2.*zloop.r*zloop.i + c.i;
                    zloop.r = zrtemp;
                    if ((zloop.r*zloop.r + zloop.i*zloop.i) > 4.) break;
                    ++count;
                } while (count < maxdwell);

                SetAPen(rp, count);
                if (scale == 1)
                    WritePixel(rp, x, y);
                else
                    RectFill(rp, x, y, x+scale-1, y+scale-1);
            } /* for */
        } /* for */
    } /* if */

    else if (type == JULIA) {
        for (z.i = cr->imax, y=ystart; y<=yend; z.i-=istep, y+=scale) {
            if (message = (struct IntuiMessage *)GetMsg(w->UserPort)) {
                ReplyMsg((struct Message *)message);
                break;
            } /* if */
            for (z.r = cr->rmin, x=xstart; x<=xend; z.r+=rstep, x+=scale) {
                zloop.r = z.r;
                zloop.i = z.i;
                count = 0;

                do {
                    if ((zloop.r*zloop.r + zloop.i*zloop.i) > 4.) break;
                    ++count;
                    zrtemp = zloop.r*zloop.r - zloop.i*zloop.i + jc->r;
                    zloop.i = 2.*zloop.r*zloop.i + jc->i;
                    zloop.r = zrtemp;

```

```

} while (count < maxdwell);

                SetAPen(rp, count);
                if (scale == 1)
                    WritePixel(rp, x, y);
                else
                    RectFill(rp, x, y, x+scale-1, y+scale-1);
            } /* for */
        } /* for */
    } /* else if */

    ModifyIDCMP(w, oldIDCMPFlags);

} /* MJPlot */

void SetComplexRange(struct ComplexRange *r, DOUBLE rmin,
                    DOUBLE rmax, DOUBLE imin, DOUBLE imax)
{
    r->rmin = rmin;
    r->rmax = rmax;
    r->imin = imin;
    r->imax = imax;
} /* SetComplexRange */

/*----- MAIN PROGRAM -----*/

LONG main (int argc, char *argv[])
{
    /* LOCAL VARIABLES */

    struct Window *CanDoWin;
    struct ComplexRange mrange;
    struct ComplexRange jrange;
    struct complex jc;

    char **dummy=NULL;
    char MandOrJulia;

    WORD maxdwell;
    WORD resolution;

    DOUBLE rmin, rmax, imin, imax;

    /* OPEN LIBRARIES */

    if (!OpenLibraries()) {
        CloseLibraries();
        return 1L;
    } /* if */

    /* EXECUTE PROGRAM IF RIGHT NUMBER OF ARGUMENTS */

    if (argc >= 9) {
        CanDoWin=(struct Window *) (strtol(argv[1],dummy,10));
        maxdwell=(WORD) (strtol(argv[2],dummy,10));
        resolution=(WORD) (strtol(argv[3],dummy,10));
        rmin=strtod(argv[4],dummy);
        rmax=strtod(argv[5],dummy);
        imin=strtod(argv[6],dummy);
        imax=strtod(argv[7],dummy);
        MandOrJulia=(argv[8]);

        if (MandOrJulia == 'M') {
            SetComplexRange(&mrange, rmin, rmax, imin, imax);
            MJPlot(CanDoWin, maxdwell, resolution, &mrange, NULL, MANDELBROT);
        } /* if */

        else if (MandOrJulia == 'J') {
            jc.r=strtod(argv[9],dummy);
            jc.i=strtod(argv[10],dummy);
            SetComplexRange(&jrange, rmin, rmax, imin, imax);
            MJPlot(CanDoWin, maxdwell, resolution, &jrange, &jc, JULIA);
        } /* else if */
    } /* if argc >= 2 */

    CloseLibraries();

} /* main */

```

•AC•

Please Write to:
 Randy Finch
 c/o Amazing Computing
 P.O. Box 2140
 Fall River, MA 02722-2140

BMD U.S.—Top 10 for September

Top 10 CD³² Titles

Sept	Aug	
1	2	Microcosm/Chaos Engine Combo
2	4	Gunship 2000
3	-	Ultimate Body Blows
4	-	D/Generation
5	-	Frontier: Elite 2
6	-	Liberation
7	-	Nigel Mansell
8	-	Lotus Trilogy
9	-	Mean Arenas
10	3	Pirates Gold

Top 10 Amiga Game Titles

Sept	Aug	
1	-	King's Quest IV
2	4	Settlers
3	8	Armourgedden-II Codename Hellfire
4	4	Civilization
5	-	Syndicate
6	1	Frontier Elite
7	3	Gunship 2000
8	-	Ishar 3
9	-	Mortal Kombat
10	-	Val Hella

Titles are complements of British Magazine Dist. U.S.
Pick them up at your local dealer or have them call.
Dealer inquiries are welcome 412 962 6001.

List of Advertisers

Please use a **FREE** AC Reader Service card to contact **ALL** advertisers who have sparked your interest. Amiga product developers want to hear from you! This is the best way they have of determining the Amiga community's interests and needs. Take a moment now to contact those companies featuring products you want to learn more about. And, if you decide to contact an advertiser directly, please tell them you saw their advertisement in *Amazing Computing*!

Advertiser	Page	Reader Service Number
AMIGA LIBRARY SERVICES	7	116
ARMADILLO COMPUTING	60	*
BRUCE SMITH BOOKS, LTD	CII	*
CREATIVE EQUIPMENT INT'L	5	102
CCM COMPUTERS	44	115
COMPUTER ANSWERS	49	111
COMPUTER BASICS	40	101
COMPUTER BASICS	41	101
DELPHI NOETIC SYSTEMS INC	45	*
DIGITAL CREATIONS	CIII	109
DIGITAL CREATIONS	CIV	108
DIGITAL IMAGERY	73	*
MYRIAD VISUAL ADVENTURES	60	103
NEURALINK	60	106
NOVA DESIGN	1	104
OREGON RESEARCH	11	107
OXXI, INC.	62	159
SCIENTIFIC AMIGAN	61	112
UTILITIES UNLIMITED	33	114
THE VIDEO WORKS	61	110

* This company wishes to be contacted directly.

Amazing Computing & AC's TECH SUPER Back Issue SPECIALS!

While supplies last!

Order complete volumes of
Amazing Computing and *AC's TECH* Back
Issues at these incredible prices!

ANY 12 BACK ISSUES

Amazing Computing:

\$29.95

\$20!

(\$25 Foreign)

(Includes shipping & handling)

ANY 4 BACK ISSUES

AC's TECH:

\$45.00

\$40!

(Includes shipping & handling)

Don't miss out on this great offer!

Call: 1-800-345-3360

PeeCee's

Digital Imagery

**High Quality
35 MM
Slides
from your
Amiga™
Graphic Files**

Slide imaging prices start at

JUST \$3.50

(72-hour Turnaround / 4K Resolution / Most Amiga Formats)

945 Walnut Street Fall River, MA 02720

Voice Tel. 508.676.0844

BBS 508.676.9308 (14400/8N1)

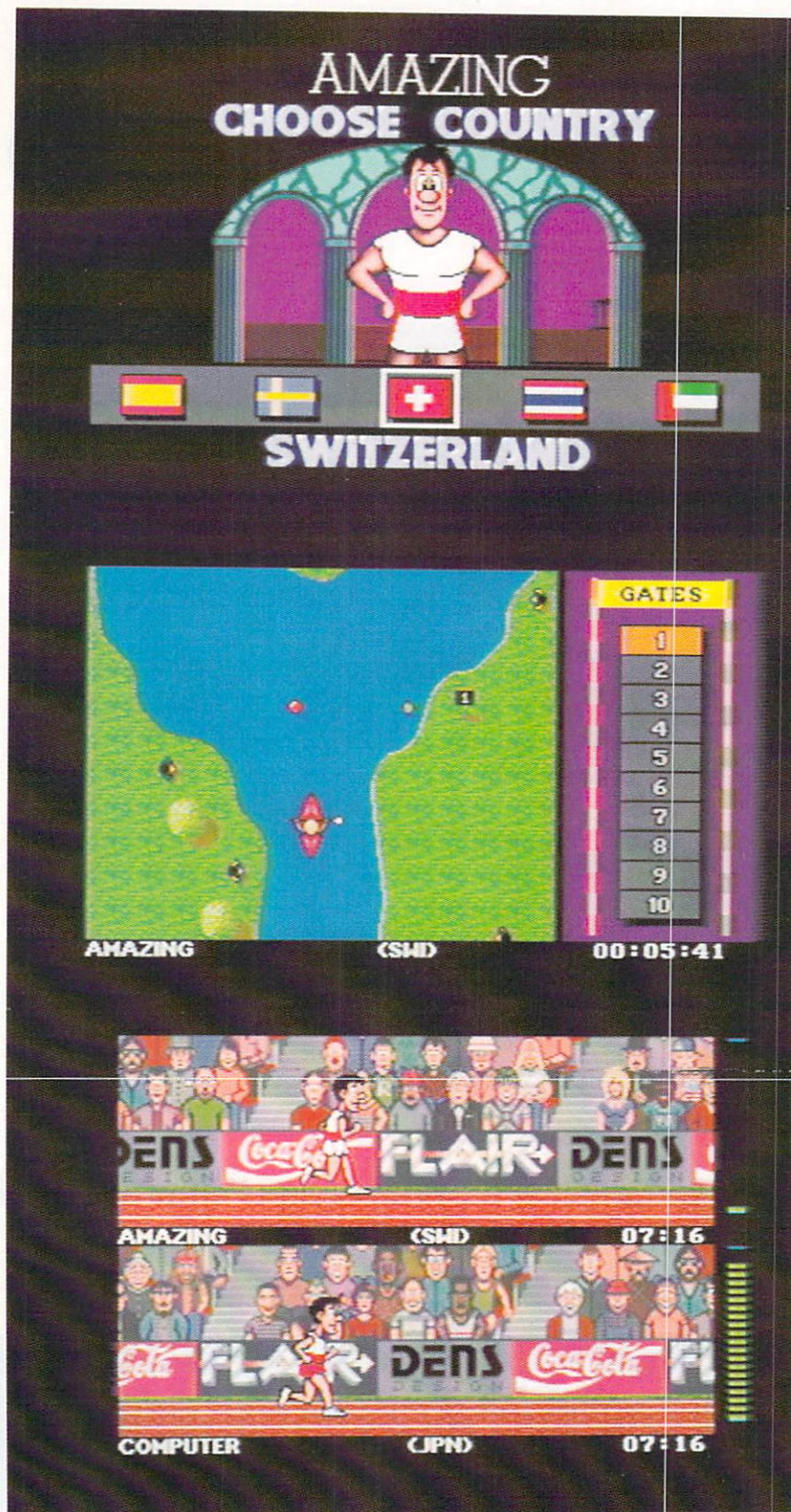
FAX 508.676.5186

AMIGA Games

From World Class Sports to World Class Nuts (with a few World Wars thrown in) the Amiga adds several more diversions.

Summer Olympix

This game for the CD32 is offered by Flair Software. Olympic events included are Skeet Shooting, Javelin throwing, Swimming, Archery, the Long Jump, Kayak Racing, Boxing, and the 100 Meter Sprint. The game will support up to four players. You can Shuffle Events On/Off, allowing you to play any event in any order or one event until you have qualified. With the Shuffle Option ON you can try to qualify for a number of different events in random order. You will be given the qualifying time at the start of the event and if you beat this time, you will be allowed to go on to the next event. If you fail to qualify, you will still go on to another event, but you must go back to the failed event, to try again at a later time. If the Shuffle Option is Off, you must qualify on each event, before you are allowed to go onto the following event. All the events use similar keys, Joypad controls for directions, Front Trigger controls to gain speed and the Red button to start or confirm a function. On the split-screen events, in the two or more player mode, the second player needs to press the Red button to confirm they are ready to play. When both players are ready, press the red buttons again to start the action. Flair Software, Meadowfield House, Ponteland, Newcastle, England NE20 9SD. Inquiry #229



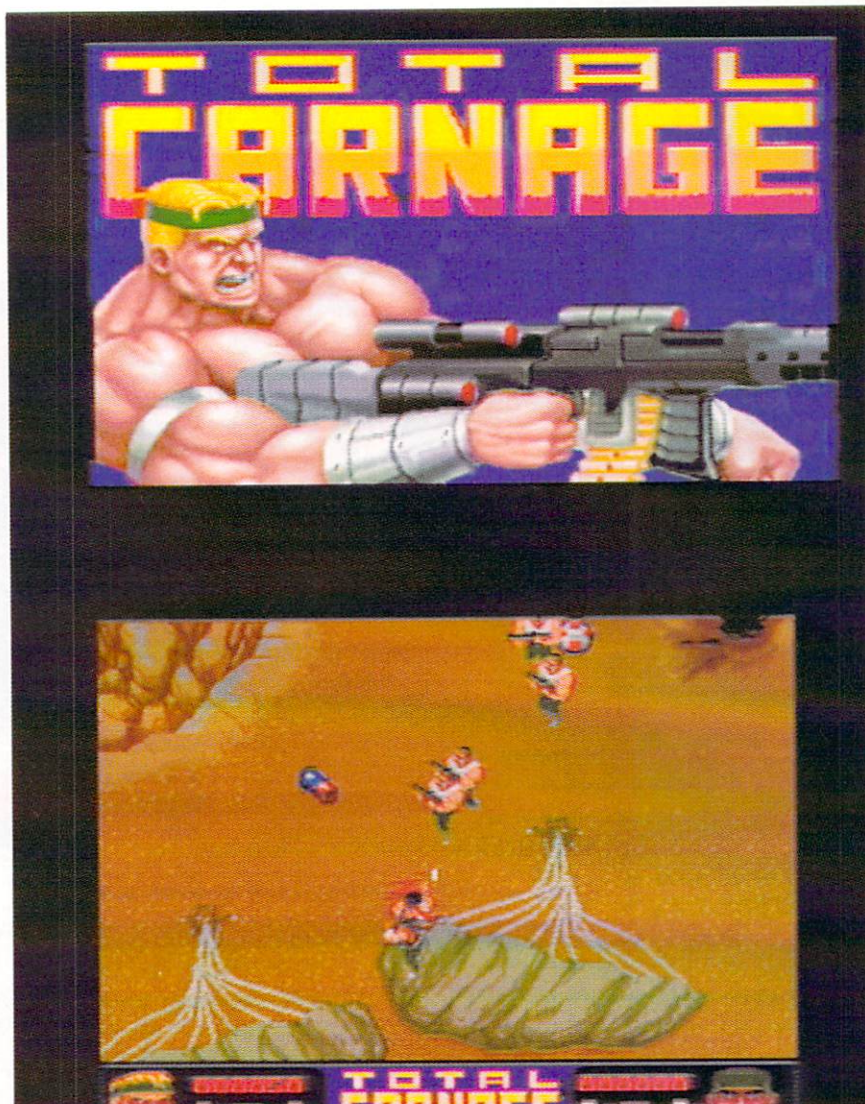
Total Carnage

Another CD32 game from International Computer Entertainment Ltd. Out of nowhere, crazy, power-mad General Akhboob became the sole military power in Kookistan by creating his own army of mutants from the radioactive goo produced in his bio-nuclear generator. With his endless supply of mutant forces and the hostages in his possession, Akhboob stands ready to wreak havoc upon the entire globe. Only two men are brave enough, strong enough, and simple-minded enough to take on Akhboob's army. They are Captain Carnage and Major Mayhem - The Doomsday Squad. You are in charge of the 21st Century's most dangerous (and smallest) fighting battalion. Your mission is to get the hostages and disable Akhboob's forces. Your classification is expendable. Guide Carnage and Mayhem through Akhboob's awesome array of defenses to get inside his stronghold and go after the General himself. Fortunately, these two men don't know the meaning of the word fear. Unfortunately, they don't know the meaning of a lot of other words either, so they're counting on you. Good luck. Normal procedure is to advise progress with extreme caution, however, in this situation, you have been authorized to proceed with complete disregard for their own safety. Your mission has been designated Total Carnage.

International Computer Entertainment Ltd, Bridge House Merrywalks Stroud, United Kingdom, GL0SGL5 1QA, Tel: 0453-756993, FAX: 0453 756998 Inquiry #230

Banshee

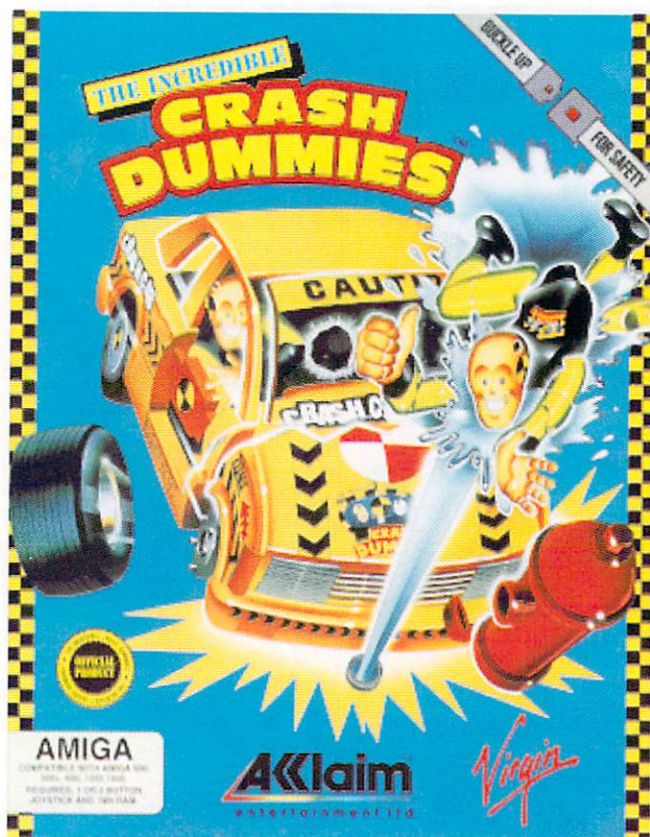
The place is Earth in the year 1999 in this CD32 game. However, it is the Earth of a different timeline, where the last two World Wars were never fought and aviation technology hasn't advanced beyond the power-propped plane. There are no microwave ovens and TV is still in black and white. There are no Superpowers. Humankind lives peacefully, that is until Blardax Maldrear, the evil alien



Total Carnage: Guide Carnage and Mayhem through Akhboob's awesome array of defenses



Banshee: Earth of a different timeline, where the last two World Wars were never fought and aviation technology hasn't advanced beyond the power-propped plane.

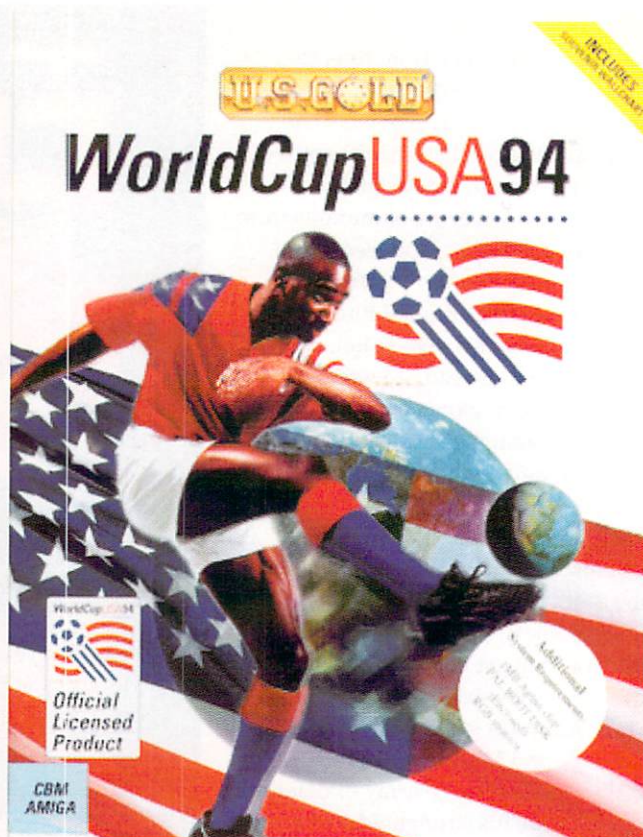


emperor of the Styx Empire has an idea. You guessed it, he wants to spread his kingdom all over the Earth. Thus the invasion begins and only one man stands in the way of Blardax and his name is Sven Svardensvart. Sven escapes to the last free place on Earth and swiftly builds an incredible flying machine, bristling with guns, rockets and other deadly weapons. He calls this plane the "Banshee" and thus begins this one-man rebellion.

Core Design Limited, 55 Ashbourne Rd, Derby, United Kingdom, DE22 3FS, Tel: 0332-297797, FAX: 0332-381511. Inquiry #231

The Incredible Crash Dummies

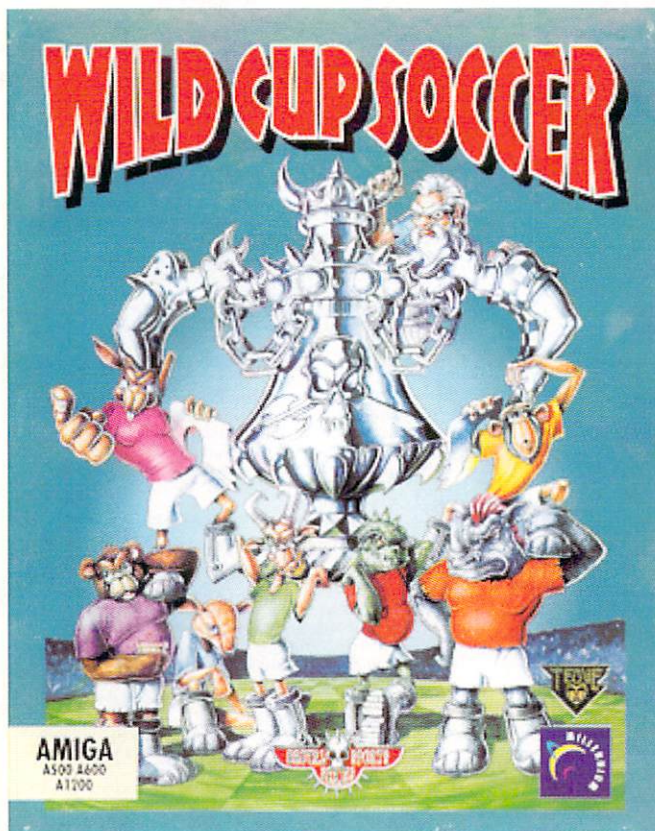
To help fulfill his dream of global domination, Junkman has abducted Dr Zub, creator of the incredible Crash Dummies, and, more importantly, the even more amazing TORSO-9000. If the Junkman can force Dr Zub to reveal his secrets, he can build an army of Super Junkbots and make the world an unsafe place. Spin has to stay behind to watch the lab, so it's up to you. Help Slick save Dr Zub. There are four very different Zones to get through before Slick gets to combat Junkman and free Dr Zub. Make the most of Slick's running and jumping abilities. Keep him out of the way of hazards and don't bump into Junkman's Junkbots. Stop the Junkbots by jumping on them or throwing wrenches at them. Be careful, though, because at the end of each Zone, Slick meets one of Junkman's chief henchmen: Sideswipe, Jack Hammer, and Piston Head. Crash Dummies is a one



player game compatible with the A500, 500+, 600, 1200, and 1500. It requires a 1 or 2 button joystick and 1Mb RAM. Virgin Interactive Entertainment Ltd, 338A Ladbroke Grove, London, England W10 5AH. Inquiry #232

World Cup USA 94™

On June 17th, 1994 the greatest soccer show on earth kicked off in the US. Soccer's elite 24 nations met head-on in their quest for the most prestigious prize - the FIFA World Cup. For 60 years the World Cup has symbolized sporting excellence. Here's your chance to take up the ultimate challenge and make soccer history. Steer your team to the height of international success against the best footballers in the world and re-write the XV World Cup record books. World Cup USA '94 is the most comprehensive soccer simulation ever, capturing the magic of the most spectacular event in the sporting calendar to the finest detail. A flexible control system enables you to make every strategic decision involved in the four-week tournament, or if you can't be bothered with tactics go straight to kick-off. The build-up to each game can be as complex or as simple as you like. When you get on the pitch only one question remains - have you got what it takes to win the World Cup? The package includes a souvenir wallchart. System requirements include an A500/+, A600, A1000, A1200, A1500 & A2000 with a minimum memory of 1Mb Agnus chip, 1 or 2 button joystick, and Workbench 1.2 or above. It is hard drive installable and requires 1.5Mb of free disk space.

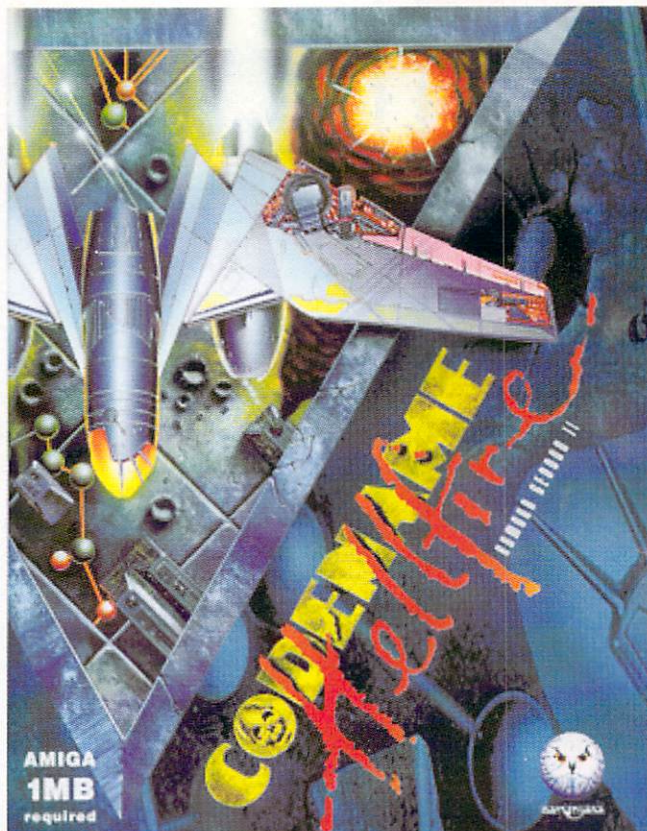


U.S. Gold Ltd., Units 2/3 Holford Way, Holford, Birmingham, UK, B6 7AX, Tel: 021 625 3366. Inquiry #233

Wild Cup Soccer

This advanced version of soccer grew out of a once popular game called soccer. A study showed that a primitive version of this sport was played many years ago with teams of humans. The aim of their game was to outscore their opponents by kicking a round sphere, known as a football, into their opponents net. The simple but effective principal was complicated by an enormous number of rules, including the incomprehensible 'offside' rule and a large number of 1-0 wins. The games were boring and attendance fell. New rules and style were brought in to no avail. It was the invention of cheap bio-engineered mutants and cyborgs that saved the sport. Eight breeds have been manufactured, each with their own strengths and weaknesses. The essential purpose of the game - to outscore the opponent - remains the same but the rule book is out the window. Bad sportsmanship and foul play are encouraged. A league competition and a knockout competition were formed. The Wild Cup was created as a showcase event, to show the universe the qualities of this new game. Plays on an Amiga 500, 600 or 1200.

Millennium Interactive Ltd, Queen House, Mill Court, Great Shelford, Cambridge, UK, CB2 5LD Inquiry #234



Codename Hellfire™ Armour-Geddon II

This game does not take sides. Here there is only Darwin's Law of the survival of the fittest. The facts are simple. You have total control of the land and air forces of EDEN. Your objective is to launch a space probe to destroy the Hellfire Satellite and so remove forever the Damocles Sword that threatens our civilization. Unfortunately, the enemy knows that the satellite is recoverable so they are going to try to recapture the weapon. The Earth Defence Network HQ is located deep below the ground at three key locations. All above ground sorties will be made from this location. As Commander-in-Chief of EDEN's land and airforces you will have control of up to six different vehicles at once. Co-ordinated control of a variety of attack craft is essential for quick and effective progress against the enemy. That progress is measured by the construction of your space probe: successful completion of missions will speed up your construction rate while slowing down the enemy's. Remember - your supplies of vehicles and armaments are limited. In this scenario wastage is a cardinal sin. Do not squander your precious ordinance, the wages of wastage are death.

Psygnosis Ltd, South Harrington Bldg, Sefton Street, Liverpool, UK, L3 4BQ. Inquiry #235

•AC•

Titles supplied by BMD-USA Distributors
Dealer Inquiries, please call 1-412-962-6001

AC's Back Issue Index

Amazing Computing

Vol. 8, No. 10, October 1993

Highlights Include:

"**Making Waves**," Focus on the wave requester in Part IV of the Aladdin series, R. Shams Mortier
 "Clouds in Motion," Animated clouds in Scenery Animator, by R. Shams Mortier
 "Media Madness," Discover what it can do for Bars&Pipes, by Rick Manasa
 "Bars&Pipes Professional 2.0," review by Rick Manasa
 "Bernoulli MultiDisk 150," A review of this great Iomega drive.
 ALSO: Commodore's new CD32!

Vol. 8, No. 11, November 1993

Highlights Include:

"CanDo," This installment covers developing a custom object by combining several standard CanDo objects, by Randy Finch.
 "Brilliance," A complete review of this hot new paint and animation program from Digital Creations, by Frank McMahon.
 "Online," The introduction of this new telecommunications column for the Amiga, by Rob Hays.
 "Get Graphic: Digital Image F/X," The introduction of AC's new graphics column, by William Frawley.
 "Picasso II," A review of one of the best new graphics cards available, by Mark Ricken.
 ALSO: WOCA Pasadena: Commodore introduces CD-32! Plus, the incredible LightRave, a Video Toaster emulator!

Vol. 9, No. 1, January 1994

Highlights Include:

"Designing Holiday Cards," Using your favorite DTP programs to create holiday cards, by Dan Weiss.
 "Accent on Multimedia," First in a series exploring the history and concepts behind multimedia, by R. Shams Mortier.
 "Primera Printer," Review of this low end, inexpensive color printer, by Merrill Callaway.
 "Commodore 1942 Monitor," In-depth study of this comprehensive Amiga paint package, by R. Shams Mortier.
 ALSO: Commodore Shareholders Movement

Vol. 9, No. 2, February 1994

Highlights Include:

"Amiga on Internet," Exploration of Internet and its services, by Henning Vahlenkamp.
 "EGS 28/24 Spectrum," A review of this hot graphics card from GVP, by Mark Hoffman.
 "Magic Lantern" A new animation compiling program for all Amiga display modes, by R. Shams Mortier.
 "Get Graphic: Digital Image F/X," Using ARexx, Opal Paint, ADPro, and DeluxePaint to process images, by William Frawley.
 ALSO: Exclusive interview with Lew Eggebrecht!

Vol. 9, No. 3, March 1994

Highlights Include:

"Amiga Stars at Medical Convention," Medical multimedia on the Amiga, by Michael Tobin, M.D.
 "CanDo vs. HELM," Head-to-head review of two leading Amiga authoring systems, by Randy Finch.
 "PD Update," This month, a description of AlertPatch 2.9 and other shareware and freeware utilities, by Henning Vahlenkamp.
 "Scala MM300," A review of the program believed to be "hot stuff" for anyone doing interactive media work, by R. Shams Mortier.
 ALSO: And furthermore: The Amiga takes the stage in the Broadway production of The Who's Tommy!

Vol. 9, No. 4, April 1994

Highlights Include:

"Computer Cafe Serves Up Shasta," The design team at Computer Cafe creates incredible "can-a-mation" for a beverage commercial, by Robert Van Buren.
 "Aladdin 4D Review," Comprehensive look at the latest version of Aladdin, by R. Shams Mortier.
 "AGA Chipset and the Amiga: CD32 to the Rescue!" What does the future hold for CD32 and Amiga games? Jeff James has the inside scoop, by Jeff James.
 "Sync Tips," Video returns to the pages of AC, featuring Oran Sands.
 ALSO: Exclusive interview with renowned Amiga artist Jim Sachs.

Vol. 9, No. 5, May 1994

Highlights Include:

"Desktop Publishing for Profit," Resume design: A simple and profitable way to break into the desktop publishing field, by Dan Weiss.
 "24-bit Painting Techniques," Innovative tips and tricks anyone can use to make their computer paintings look better, by Mark Hoffman.

"PD Update," This month, MegaBall 3.0, Motorola Invaders, New World, and more, by Henning Vahlenkamp.

"MicroBotics MBX-1200Z," A review of this handy math coprocessor and 32-bit RAM add-on card for the Amiga 1200, by Rob Hays.
 ALSO: The long-awaited Amiga 4000 Tower is showcased at the Cebit show in Germany.

Vol. 9, No. 6, June 1994

Highlights Include:

"CanDo," Select, enter, and play music files, by Randy Finch.
 "NAB show report," AC travels to Las Vegas for the latest releases and announcements.
 "Making an Article Database," Create a simple database to keep track of magazine articles using the HELM authoring system, by Doug Nakakihara.
 "A Survival Guide to CD-ROM Part I," The first in a four part series designed to take the confusion out of CD-ROM devices, by Mark Ricken.
 "Bubbles vs. Heat," Fargo's Primera Color Printer & Canon's BJC-600, by Dwinn Craig.
 "1994 Reader's Choice Awards Ballot".
 "TypeSmith 2.0," Review, by Merrill Callaway.
 "The A 64 Package 3.0," This new release brings quality C64 emulation to the Amiga, by Henning Vahlenkamp.
 "MIDIquest 4.5 & TECHquest," Review, by Shams Mortier.

Vol. 9, No. 7, July 1994

"Accent on MultiMedia Part IV," This installment investigates the hardware end of the Amiga's involvement in MultiMedia by R. Shams Mortier.

"1994 Reader's Choice Awards Ballot," Amazing Computing's 3rd annual Reader's Choice Awards. Cast a vote for your favorite product.
 "Brilliance 2.0," A review of the latest update to Digital Creations' Brilliance/True-Brilliance by R. Shams Mortier.

"Cocoon Morph," DevWare's Cocoon morphing program features motion morphing and more by R. Shams Mortier.

"FinalWriter 2.0," New menu items including Undo/Redo, Font/Style Strip and faster graphics are covered in this upgrade review by Merrill Callaway.

"Digital Image Special F/X," Displaced Textures and other new operators found in ADPro 2.5 are explored in Part 9 in this series by William Frawley.

"New Products & Other Neat Stuff," Mr AMOS Club Programmers Pack, The DataFlyer SCSI+, Cinema 4D, DesktopMAGIC 2.0, DICE3.0, Alpha Paint, Sequel v1.2, Fury of the Furries, Super Methane Bros., Brutal Football, Fire & Ice round out the items found in this issue's New Products.

"Sync Tips," Video color correction with your Amiga by Oran Sands.

"Diversions," This month: Hired Guns from Psynopsis Ltd., Fighter Duel Pro 2 from Jaeger Software, and A-Train Construction Set from Maxis Software.

Vol. 9, No. 8, August 1994

Highlights Include:

"Teaching Writing with Scala MM300," The educational applications of Scala MM300 are explored by Charles F. Cavanaugh.

"Shielding Yourself For Sci-Fi," A tutorial on developing Sci-Fi shielding effects using Imagine and Aladdin 4D by Dave Matthews and Marc Hoffman.

"Digital Image F/X," OpalPaint tips and tricks by William Frawley.

"Batchers," A review of Amiga batching software for image processing by Shams Mortier.

"CD," Nick Faldo's Championship Golf, Body Blows and Surf Ninjas bring the movie fun to CD.

Vol. 9, No. 9, September 1994

Highlights Include:

Reviews of "Toccata," "Snow Words and Nimble Numbers," "Amiga Oberon-2," "Take 2, Studio 16 3.0 and AD516 Board," and "Panorama 3.0".

"A 2D Animation Project," How the concept of ANIMbrushes in DPaint helped produce an animation project by Shams Mortier.

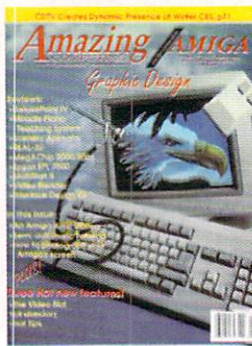
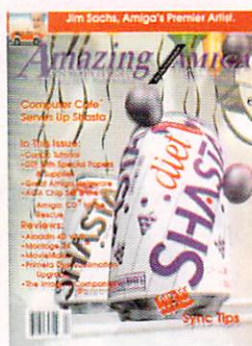
"Aladdin-4D: Tutorial #9," Instancing and CSpline variations are covered in this continuing Aladdin 4D tutorial by Shams Mortier.

"AC Exclusive!" Commodore's U.K. General Manager, David Pleasance, shares his thoughts and hopes on his management buyout attempt for Commodore and the Amiga.

"Roomers," The Bandito discusses the CBM turmoil and the Amiga's future—Where we get upset and join in.

"Dragonworld," Hollywood generates computer images on a shoestring—Amiga style.

And much, much more.



AC'S TECH

AC's TECH, Vol. 3, No.3

Highlights Include:

"Rexx Rainbow Library," A review by Merrill Callaway
 "All You Ever Wanted to Know About Morphing," An in-depth look at morphing for Imagine by Bruno Costa and Lucia Darsa
 "Custom 3D Graphics Package Part I," Designing a custom 3D graphics package by Laura Morisson.
 "Build a Second Joystick Port," A simple hardware project for an additional joystick port by Jacques Halles.
 AND LOTS MORE ON DISK!

AC's TECH, Vol. 3, No. 4

Highlights Include:

"Custom 3D Graphics Package Part II," Put the finishing touches on your own graphics package by Laura Morisson.
 "TrueBASIC Input Mask," An interesting TrueBASIC utility by T. Darrell Westbrook.
 "Time Efficient Animations," Make up for lost time with this great animation utility by Robert Galka.
 "F-BASIC 5.0," A review of this latest version of F-BASIC by Jeff Stein.
 PLUS: CD32 Development Info!

AC's TECH, Vol. 4, No. 1

Highlights Include:

"Artificial Life," Artificial life, intelligence and other technical tidbits in this piece, by John Iovine.
 "Huge Numbers Part I," Creative number crunching, by Michael Greibling.
 "Pseudo-random Number Generation," Generating sequences of random numbers—almost, by Christopher Jennings.
 "Draw 5.0," Door prize selection in AMOS Professional, by T. Darrell Westbrook.
 "Programming the Amiga in Assembly Language," Complex functions are explored, by William P. Nee.

"Writing a Function Genie for Pro Draw," Create a calendar beginning October 1582, by Keith D. Brown.

AC's TECH, Vol. 4, No. 2

Highlights Include:

"True F-BASIC," What do you get when you cross True BASIC with F-BASIC? You'll be surprised, by Roy M. Nuzzo.
 "Huge Numbers Part II," Creative number crunching, by Michael Greibling.
 "Building an Audio Digitizer," Create a simple audio digitizer for your Amiga, by John Iovine.
 "A Look at Compression," Various compression techniques and what they do for you, by Dan Weiss.
 "Programming the Amiga in Assembly Language," Using the math coprocessor, by William P. Nee.
 "AmigaDOS Shared Libraries," Examining AmigaDOS libraries and their functions, by Daniel Stenberg.

AC's TECH, Vol. 4, No. 3

Highlights Include:

"Amiga π ," The program described in this article originally appeared as an Apple II Integer Basic listing in the magazine Micro in the late 1970s. Here it is, recycled as an Amiga program written in AMOS Basic by Robert Davis.
 "Assembly Programming for the Next Generation of Amiga Computers," Taking advantage of the increased speeds of faster processors by Christopher Jennings.
 "Huge Numbers Part 3," by Michael Greibling.
 "A Simple AmigaDOS Handler," by Stephen Rondeau
 "A Pair of Pickovers," Two articles adapted for the Amiga from computer books by Clifford A. Pickover by Bill Nee.

1-800-345-3360



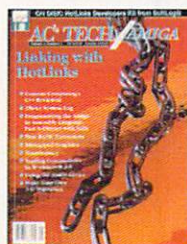
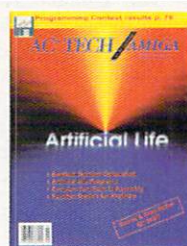
BACK ISSUE SPECIALS!
SEE PAGE 72 FOR DETAILS

Complete selection of Amazing Computing and AC's TECH AVAILABLE!

WHAT HAVE YOU BEEN MISSING? Have you missed information on how to add ports to your Amiga for under \$70, how to work around *DeluxePaint*'s lack of HAM support, how to deal with service bureaus, or how to put your Super 8 films on video tape, along with Amiga graphics? Do you know the differences among the big three DTP programs for the Amiga? Does the ARexx interface still puzzle you? Do you know when it's better to you use the CLI? Would you like to know how to go about publishing a newsletter? Do you take full advantage of your RAMdisk? Have you yet to install an IBM mouse to work with your bridgeboard? Do you know there's an alternative to high-cost word processors? Do you still struggle through your directories?

Or if you're a programmer or technical type, do you understand how to add 512K RAM to your 1MB A500 for a cost of only \$30? Or how to program the Amiga's GUI in C? Would you like the instructions for building your own variable rapid-fire joystick or a 246-grayscale SCSI interface for your Amiga? Do you use easy routines for performing floppy access without the aid of the operating system? How much do you really understand about ray tracing?

The answers to these questions and others can be found in AMAZING COMPUTING and AC's TECH.



And furthermore...

Jim Uhler—an Amiga artist who has played football, sculpts, paints, created an advertising business, and a whole lot more.

Jim Uhler is a complex individual. His home studio is crowded with paintings and sculptures of his own design. He played football in high school for four years and won a scholarship to the University of Colorado while also earning "All City" as a fullback in his senior year at Chicago's Schurz High School. Colorado beat Clemson in Uhler's senior year in the Orange Bowl (Uhler had played center and linebacker all four years. All this football talent earned him a preseason spot with the Chicago Bears. However, Chicago opted for a different style in regular season.

Jim Uhler then started work with the giant Chicago retailer, Marshall Fields as he simultaneously attended the University of Chicago, the Art Institute of Chicago, and the Academy of Art. After receiving a Master's Degree in Fine Arts from the Art Institute, he started a 14 year career with Foote Cone Belding, a large advertising firm with clients such as Levis, SunKist, Hallmark, Kimberly Clark, and more. This led the way for Uhler's private undertaking, Thunderhead Advertising & Design.

Although Mr. Uhler started his company in 1974, he did not get his first computer (an Amiga) until 1986. Thunderhead is currently equipped with an Amiga 2500 with a GVP 68030 accelerator which is networked with an Amiga 3000 Tower powered by an 040. Mr. Uhler is able to access each computer through the same keyboard with the use of a switch.

In producing the EduSystems brochure (cover above and sample layout below), Mr. Uhler created all the graphics. The photos, except for a few that Uhler reshot, were provided by EduSystems—over a thousand snap shots. Jim had to review them all and then scan and edit them to his needs. "I did a lot of work with ADPro and ImageMaster."

The Arabic sections were translated and written in Saudi Arabia by EduSystem employees and then sent to Jim. The result was handled as an image, scanned into the computer with the help of an Epson AP300, and treated as an image in the document.

When asked if this was a typical job in the art and advertising business, Uhler responded, "There are no typical jobs."

"When the Toaster came out, I got a Toaster. I have been doing some videos for people—writing and producing them. I also like to do regular advertising campaigns where we come up with a

concept. Then from start to finish, we develop the advertising program, place the space, and do the whole thing."

What words does he have for people who are considering art or advertising as a career? "If you want to get into advertising, one of the most important things that you want to realize is that computers are nasty task masters, but they are just tools. The basis of the advertising business is thinking. It is ideas. I find it is often a trap you can get into by spending hours and hours learning all the intricacies of how those programs work. Your are not thinking up a better idea, you are just hacking away at something that is taking an incredible amount of time."

A Network of Amiga Artists

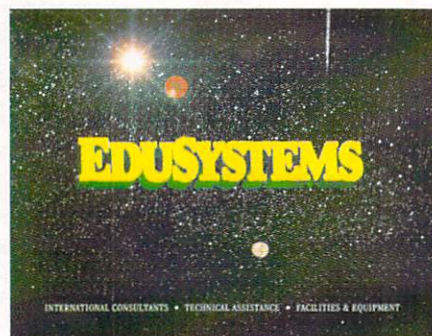
"I think it would be really useful for me to know more Amiga people that I could work with and to network with them more." Mr. Uhler went on to say, "A lot of the people are incredibly creative in different areas, not necessarily in just design or illustration, but incredibly creative with the computer itself."

"Most of the great illustrators who have gone to computers, do not even know that the Amiga exists. That is not necessarily true in the video world. Guys like Spielberg can find it. There are some heavy duty people in the animation areas. But, from my standpoint, I would just like to know more Amiga people who are doing great work."

"I would like to network with some of them. As an example, let's say I get an idea for an ad and I have a budget for the ad where I could farm out some of the illustrations and not do it myself. All I would have to do is concept the thing and produce it. Then I could bring in more people."

"I think there should be a recognition of creativity and talent out there. Just because artists have a tool and they are able to efficiently work the tool, it doesn't mean that they are able to create great stuff."

If you're an Amiga artist and you have something you want to submit to Jim Uhler's agency, you can contact him directly at: Thunderhead Advertising & Design, 307 Church, Harvard, IL 60033, (815) 943-6930, FAX (815) 943-3337.



EDUSYSTEMS

Introduction

Education is the most important factor in the development of a nation. It is the foundation of a strong and prosperous society. EduSystems is a leading provider of educational software and services. We are committed to providing the highest quality products and services to our customers.

Services

- Customized software development
- Hardware and software integration
- Training and technical support
- Consulting and system analysis
- Project management and implementation

Our Commitment

We are committed to providing the highest quality products and services to our customers. We are committed to continuous improvement and innovation. We are committed to the success of our customers.

Our Products

- Educational software
- Hardware and software
- Training and technical support
- Consulting and system analysis
- Project management and implementation

Our Customers

We serve a wide range of customers, including schools, universities, and government agencies. We are committed to providing the highest quality products and services to all of our customers.

Our Future

We are committed to continuous improvement and innovation. We are committed to the success of our customers. We are committed to providing the highest quality products and services to our customers.

John Uhler used his skills at both graphic artist and advertising professional to create EduSystems' marketing piece.

Amazing AMIGA FREE INFORMATION!

Name _____
 Street _____
 City _____ ST. _____ Zip _____
 Country _____

AC November 1994 valid until 12/31/94
 see page 72 for reference numbers

A. Which of the following do you now own?
 (please check all that apply)

- O 1. Amiga 500 O 4. Amiga 1200
 O 2. Amiga 600 O 5. Amiga 2000
 O 3. Amiga 1000 O 6. Amiga 3000
 O 7. Amiga 4000

B. If none of the above, which do you plan to buy soon?

- O 7. Amiga 4000 O 10. Amiga 1200
 O 8. Amiga 3000 O 11. Amiga 600
 O 9. Amiga 2000 O 12. Amiga 500

C. Which Amiga hardware product do you plan to buy next?

- O 11. memory expansion O 15. modem
 O 12. hard drive O 16. music tool
 O 13. IBM emulators O 17. video product
 O 14. printer O 18. accelerator
 O 19. other (please specify): _____

D. Which Amiga software product do you plan to buy next?

- O 20. C language O 27. spreadsheet
 O 21. Forth language O 28. database
 O 22. Modula-2 language O 29. financial
 O 23. Assembly language O 30. video
 O 24. BASIC language O 31. graphics
 O 25. entertainment O 32. music
 O 26. telecommunications O 33. other (please specify): _____

E. How much money are you likely to spend on all Amiga product purchases this year?

- O 34. \$0-\$250 O 38. \$1501-\$2000
 O 35. \$251-\$500 O 39. \$2001-\$4000
 O 36. \$501-\$1000 O 40. over \$4000
 O 37. \$1001-\$1500

F. Where do you buy Amiga products?

- O 41. local Amiga Dealer O 43. manufacturer
 O 42. discount department store O 44. mail order

G. How many times have you purchased an Amiga product after seeing it in AC?

- O 45. frequently O 47. once
 O 46. occasionally O 48. never

H. How did you obtain your copy of AC?

- O 49. subscribe (how long? _____ years)
 O 50. buy at local Amiga dealer
 O 51. buy at bookstore/newsstand/software store

I. How many others not including yourself usually see or read your issue of AC each month?

- O 52. other: _____

J. How do you read AC each month? (please check one)

- O 53. _____ others, in addition to myself
 O 54. read virtually everything, cover-to-cover
 O 55. scan through pages and read items of interest only
 O 56. check table of contents and maybe read 1-2 articles
 O 57. read my favorite column(s) only
 O 58. read very little of it

K. Have you ever purchased a copy of AC's GUIDE?

- O 59. yes—but only once. O 61. no—but plan to soon.
 O 60. yes—two or more times. O 62. no—not interested.
 O 63. yes—I subscribe.

L. Have you ever purchased a copy or subscribed to AC's TECH?

- O 59. yes—but only once. O 61. no—but plan to soon.
 O 60. yes—two or more times. O 62. no—not interested.
 O 63. no—use my dealer's copy.

101	102	103	104	105	221	222	223	224	225
106	107	108	109	110	226	227	228	229	230
111	112	113	114	115	231	232	233	234	235
116	117	118	119	120	236	237	238	239	240
121	122	123	124	125	241	242	243	244	245
126	127	128	129	130	246	247	248	249	250
131	132	133	134	135	251	252	253	254	255
136	137	138	139	140	256	257	258	259	260
141	142	143	144	145	261	262	263	264	265
146	147	148	149	150	266	267	268	269	270
151	152	153	154	155	271	272	273	274	275
156	157	158	159	160	276	277	278	279	280
161	162	163	164	165	281	282	283	284	285
166	167	168	169	170	286	287	288	289	290
171	172	173	174	175	291	292	293	294	295
176	177	178	179	180	296	297	298	299	300
181	182	183	184	185	301	302	303	304	305
186	187	188	189	190	306	307	308	309	310
191	192	193	194	195	311	312	313	314	315
196	197	198	199	200	316	317	318	319	320
201	202	203	204	205	321	322	323	324	325
206	207	208	209	210	326	327	328	329	330
211	212	213	214	215	331	332	333	334	335
216	217	218	219	220	336	337	338	339	340

Amazing AMIGA FREE INFORMATION!

Name _____
 Street _____
 City _____ ST. _____ Zip _____
 Country _____

AC November 1994 valid until 12/31/94
 see page 72 for reference numbers

A. Which of the following do you now own?
 (please check all that apply)

- O 1. Amiga 500 O 4. Amiga 1200
 O 2. Amiga 600 O 5. Amiga 2000
 O 3. Amiga 1000 O 6. Amiga 3000
 O 7. Amiga 4000

B. If none of the above, which do you plan to buy soon?

- O 7. Amiga 4000 O 10. Amiga 1200
 O 8. Amiga 3000 O 11. Amiga 600
 O 9. Amiga 2000 O 12. Amiga 500

C. Which Amiga hardware product do you plan to buy next?

- O 11. memory expansion O 15. modem
 O 12. hard drive O 16. music tool
 O 13. IBM emulators O 17. video product
 O 14. printer O 18. accelerator
 O 19. other (please specify): _____

D. Which Amiga software product do you plan to buy next?

- O 20. C language O 27. spreadsheet
 O 21. Forth language O 28. database
 O 22. Modula-2 language O 29. financial
 O 23. Assembly language O 30. video
 O 24. BASIC language O 31. graphics
 O 25. entertainment O 32. music
 O 26. telecommunications O 33. other (please specify): _____

E. How much money are you likely to spend on all Amiga product purchases this year?

- O 34. \$0-\$250 O 38. \$1501-\$2000
 O 35. \$251-\$500 O 39. \$2001-\$4000
 O 36. \$501-\$1000 O 40. over \$4000
 O 37. \$1001-\$1500

F. Where do you buy Amiga products?

- O 41. local Amiga Dealer O 43. manufacturer
 O 42. discount department store O 44. mail order

G. How many times have you purchased an Amiga product after seeing it in AC?

- O 45. frequently O 47. once
 O 46. occasionally O 48. never

H. How did you obtain your copy of AC?

- O 49. subscribe (how long? _____ years)
 O 50. buy at local Amiga dealer
 O 51. buy at bookstore/newsstand/software store

I. How many others not including yourself usually see or read your issue of AC each month?

- O 52. other: _____

J. How do you read AC each month? (please check one)

- O 53. _____ others, in addition to myself
 O 54. read virtually everything, cover-to-cover
 O 55. scan through pages and read items of interest only
 O 56. check table of contents and maybe read 1-2 articles
 O 57. read my favorite column(s) only
 O 58. read very little of it

K. Have you ever purchased a copy of AC's GUIDE?

- O 59. yes—but only once. O 61. no—but plan to soon.
 O 60. yes—two or more times. O 62. no—not interested.
 O 63. yes—I subscribe.

L. Have you ever purchased a copy or subscribed to AC's TECH?

- O 59. yes—but only once. O 61. no—but plan to soon.
 O 60. yes—two or more times. O 62. no—not interested.
 O 63. no—use my dealer's copy.

101	102	103	104	105	221	222	223	224	225
106	107	108	109	110	226	227	228	229	230
111	112	113	114	115	231	232	233	234	235
116	117	118	119	120	236	237	238	239	240
121	122	123	124	125	241	242	243	244	245
126	127	128	129	130	246	247	248	249	250
131	132	133	134	135	251	252	253	254	255
136	137	138	139	140	256	257	258	259	260
141	142	143	144	145	261	262	263	264	265
146	147	148	149	150	266	267	268	269	270
151	152	153	154	155	271	272	273	274	275
156	157	158	159	160	276	277	278	279	280
161	162	163	164	165	281	282	283	284	285
166	167	168	169	170	286	287	288	289	290
171	172	173	174	175	291	292	293	294	295
176	177	178	179	180	296	297	298	299	300
181	182	183	184	185	301	302	303	304	305
186	187	188	189	190	306	307	308	309	310
191	192	193	194	195	311	312	313	314	315
196	197	198	199	200	316	317	318	319	320
201	202	203	204	205	321	322	323	324	325
206	207	208	209	210	326	327	328	329	330
211	212	213	214	215	331	332	333	334	335
216	217	218	219	220	336	337	338	339	340

DISCOVER

MasterCard

VISA

YES!

The "Amazing" AC publications give me 3 GREAT options to save! Please begin my subscription(s) immediately!

Name _____
 Address _____
 City _____ State _____ Zip _____
 Charge my ☐ Visa ☐ MC # _____
 Expiration Date _____ Signature _____
 Please circle to indicate this is a New Subscription or a Renewal

1 year of AC	12 big issues of Amazing Computing!	US \$27.00
		Canada/Mexico \$34.00
		Foreign Surface \$44.00
1-year SuperSub	AC + AC's GUIDE = 14 issues total!	US \$37.00
		Canada/Mexico \$54.00
		Foreign Surface \$64.00
1 year of AC's TECH	4 big issues! The #1 Tech Resource	US \$43.95
		Canada/Mexico \$47.95
		Foreign Surface \$51.95

Please call for all other Canada/Mexico/foreign surface & Air Mail rates.
 Check or money order payments must be in US funds drawn on a US bank; subject to applicable sales tax.



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 36 FALL RIVER, MA

Postage Will Be Paid By Addressee

Amazing / **AMIGA**
COMPUTING

P.O. Box 2140
Fall River, MA 02722-9969



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL

FIRST CLASS MAIL PERMIT NO. 36 FALL RIVER, MA

Postage Will Be Paid By Addressee

Amazing / **AMIGA**
COMPUTING

P.O. Box 2140
Fall River, MA 02722-9969



Please return to:

Amazing / **AMIGA**
COMPUTING
Your Original AMIGA® Monthly Resource

P.O. Box 2140
Fall River, MA 02722-2140

Please place this order form in an envelope
with your check or money order.

YES! The "Amazing" AC publications give me **3 GREAT** reasons to save!

Please begin the subscription(s) indicated below immediately!

Name _____

Address _____

City _____ State _____ ZIP _____

Charge my Visa MC # _____

Expiration Date _____ Signature _____

Please circle to indicate this is a **New Subscription** or a **Renewal**



DISCOVER

Call now and use your Visa, Master Card, or Discover or fill out and send in this order form!

1 year of AC	12 big issues of Amazing Computing! Save over 43% off the cover price!	US \$27.00 <input type="checkbox"/> Canada/Mexico \$34.00 <input type="checkbox"/> Foreign Surface \$44.00 <input type="checkbox"/>
1-year SuperSub	AC + AC's GUIDE—14 issues total! Save more than 45% off the cover prices!	US \$37.00 <input type="checkbox"/> Canada/Mexico \$54.00 <input type="checkbox"/> Foreign Surface \$64.00 <input type="checkbox"/>
1 year of AC's TECH	4 big issues of the FIRST Amiga technical magazine with Disk!	US \$43.95 <input type="checkbox"/> Canada/Mexico \$47.95 <input type="checkbox"/> Foreign Surface \$51.95 <input type="checkbox"/>

Please call for all other Canada/Mexico/foreign Air Mail rates.

Check or money order payments must be in US funds drawn on a US bank; subject to applicable sales tax.

SUBSCRIBE?

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

CHARGE MY: ☐ VISA ☐ M/C # _____

EXPIRATION DATE _____ SIGNATURE _____



DISCOVER

Amazing Computing Back Issues: \$5.00 each US, \$6.00 each Canada and Mexico, \$7.00 each Foreign Surface. Please list issue(s) _____

Amazing Computing Back Issue Volumes:

Volume 1—\$15.00* Volume 2, 3, 4, 5, 6, 7, or 8—\$20.00* each or any 12 issues for \$20.00*

* All prices now include shipping & handling. * Foreign surface: \$25. Air mail rates available.

AC's TECH/AMIGA

Single issues just \$14.95! V1.1 (PREMIERE), V1.2, V1.3, V1.4, V2.1, V2.2, V2.3, V2.4, V3.1, V3.2, V3.3, V3.4, V4.1 V4.2

Volume One, Two, or Three (complete) or any four issues—\$40.00!

Freely Distributable Software – Subscriber Special (yes, even the new ones!)

1 to 9 disks	\$6.00 each
10 to 49 disks	\$5.00 each
50 to 99 disks	\$4.00 each
100 or more disks	\$3.00 each

\$7.00 each for non subscribers

(three disk minimum on all foreign orders)

AC#1 ...Source & Listings V3.8 & V3.9

AC#3 ...Source & Listings V4.5 & V4.6

AC#5 ...Source & Listings V4.9

AC#7 ...Source & Listings V4.12 & V5.1

AC#9 ...Source & Listings V5.4 & V5.5

AC#11 ...Source & Listings V5.8, 5.9 & 5.10

AC#13 ...Source & Listings V6.2 & 6.3

AC#15 ...Source & Listings V6.6, 6.7, 6.8, & 6.9

AC#2 ...Source & Listings V4.3 & V4.4

AC#4 ...Source & Listings V4.7 & V4.8

AC#6 ...Source & Listings V4.10 & V4.11

AC#8 ...Source & Listings V5.2 & 5.3

AC#10 ...Source & Listings V5.6 & 5.7

AC#12 ...Source & Listings V5.11, 5.12 & 6.1

AC#14 ...Source & Listings V6.4, & 6.5

Amazing on Disk:

Back Issues:

\$ _____

AC's TECH:

\$ _____

PDS Disks:

\$ _____

Total: \$ _____

(subject to applicable sales tax)

ORDER?

Please list your Freely Redistributable Software selections below:

AC Disks _____

(numbers 1 through 15)

AMICUS _____

(numbers 1 through 26)

Fred Fish Disks _____

(numbers 1 through 1000)

**Complete Today, or telephone
1-800-345-3360 now!**

You may FAX your order to 1-508-675-6002

Please allow 4 to 6 weeks for delivery of subscriptions in US.

(Domestic and Foreign air mail rates available on request)

Check or money order payments must be in US funds drawn on a US bank; subject to applicable sales tax.

Please return to:

Amazing COMPUTING ***AMIGA***
For The Commodore

P.O. Box 2140

Fall River, MA 02722-2140

Please place order form in an envelope with your check or money order

Please return to:

Amazing COMPUTING ***AMIGA***
For The Commodore

P.O. Box 2140

Fall River, MA 02722-2140

Please place order form in an envelope with your check or money order

***Amazing Computing for the Commodore Amiga—
Your original monthly Amiga resource!***



STILL THE BEST GRAPHIC BUY!

Create spectacular true color animations on your Amiga.



Paint, digitize and display beautiful full color composite video images on any Amiga. • Capture an image in 10 seconds from any color video camera or stable video source. • Full-featured paint, digitize and conversion software included. • Compatible with AGA 1200 and 4000 Amigas in NTSC/PAL modes. Two to four times the speed of AGA animations (DCTV vs. HAM8) with greater color and resolution.

Compatible with all popular 3D, rendering, and graphics packages including: AD-Pro, Aladdin 4D, AmigaVision, Brilliance, Calligari, Cinemorph, Draw4D, ImageMaster, Imagine, LightWave, MorphPlus, Real 3D, Scala, Scenery Animator, Sculpt, VistaPro, and many others...

DCTV (NTSC or PAL)
\$299.00

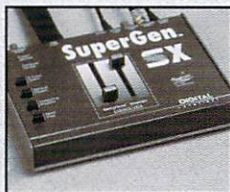
RGB CONVERTER

Allows the use of DCTV with standard RGB monitors (1084) in standard NTSC or PAL modes. Also permits the use of external genlocks like our SuperGen.

RGB Converter
\$199.00

NEW!

SuperGen SX



S-VIDEO AND COMPOSITE GENLOCK & OVERLAY SYSTEMS

SuperGen SX

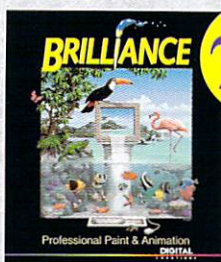
- Only broadcast quality S-Video genlock for less than \$1000
- AGA compatible. Compatible with all Amiga models
- Two independent dissolve controls
- Software controllable
- Notch filter

SuperGen SX
\$749.00

SuperGen 2000S

- Broadcast Quality
- For A2000 only - internal
- Built-in Proc-amp
- S-Video and Composite Input & Output

SuperGen 2000s
\$1195.00



2.0

ANNOUNCING BRILLIANCE VERSION 2.0

Version 2.0 of Brilliance has been designed with productivity in mind. Several new features enhance this already powerful program. Features like *Flip Frames* that allows the animator to flip through drawings. *Rub Thru* that makes compositing easier. *Load and Save Tween* paths enabling much longer and repeatable brush moves. Faster and more accurate Tweening. *True View* option for magnification. And much, much more.

Brilliance!

The best just got better!

NOW!
Without
Copy
Protection

NOW!

HOT NEW PRICE

Brilliance 2.0
\$99.00

Upgrade 1.0 to 2.0
\$49.00

The Kitchen Sync™



The Kitchen Sync provides two channels of time base correction - the perfect low cost TBC solution for the Video Toaster™.

With a Video Toaster, the Kitchen Sync provides a complete A/B roll editing system.

Two complete infinite window time base correctors on one IBM AT/Amiga compatible card • Absolute 100% broadcast quality • Composite or Y/C video in • Includes easy to use external control panel • No waveform monitor needed • Variable speed strobe • Freeze Frame, two rock-solid Freeze Fields • Low power consumption • Lowest TBC price per channel • Works with consumer grade VCRs

Two Complete Time Base Correctors On One Card!

Kitchen Sync
\$1295.00

Genlock Option

Required to synchronize the Kitchen Sync to an external video source.

Genlock Option
\$150.00

S-VHS Option

Required to enable S-VHS/Hi-8 (Y/C) video outputs.

S-VHS Option
\$150.00



Video Slot Box



NEW!

INCREASE PRODUCTIVITY!

- Four Video Slots! • Three PC/AT bus slots (power & ground only) • 230W switching power supply • Two 5.25" drive bays • One 3.5" drive bay

The Video Slot Box is a revolutionary new mini-tower that expands any Amiga A2000, A3000, or A4000 to have four complete video slots, three additional PC AT bus slots (Power and Ground only) for compatible cards such as our Kitchen Sync TBC, room for two 5.25 inch half height devices and one 3.5 inch device (You can use this room for SCSI hard drives, optical drives, flopticals, tape drives, or anything else that fits.), and a beefy 230 watt switching power supply.

The Video Slot Box provides these solutions:

Use the Video Toaster with an Amiga A3000. Use more than one video slot product in your Amiga. Easily move your desktop video environment between Amigas.

The slots in the Video Slot Box are complete video slots with all the capabilities of the video slot within the Amiga. You can place up to four video slot products into the Video Slot Box. A front panel selector lets you choose which product is actually in control of the video slot within the Amiga.

With products that are "video slot masters" such as the Video Toaster or a genlock, only one of them can be active at a time. The video slot box allows you to easily switch instantly between several such products within one machine without having to ever swap boards. And switch them with software!

Get The Most Out Of Your Amiga
Video Slot Box
\$995.00

FREE SHIPPING
on all VISA & MC orders in the US.

COD - Cash only - add \$10.00.

Call by 2:00pm PST/5:00pm EST for same day shipping.



DIGITAL

Worldwide Distributors and Dealers Wanted. Inquiries invited.

CALL

**DIGITAL
DIRECT**

916-DIGITAL
916-344-4825

9:00am to 5:00pm PST M-F

For technical information call 916-344-4825

CREATIONS

P.O. Box 97, Folsom CA 95763-0097 • Phone 916-344-4825 • FAX 916-635-0475

SuperGen SX, SuperGen2000s, DCTV, DCTV RGB Converter, Kitchen Sync, and Video Slot Box are trademarks of Digital Creations, Inc. Video Toaster is a trademark of Newtek, Inc. IBM and IBM AT are registered trademarks of IBM, Inc. Amiga is a registered trademark of Commodore-Amiga, Inc.

Circle 109 on Reader Service card.

New!

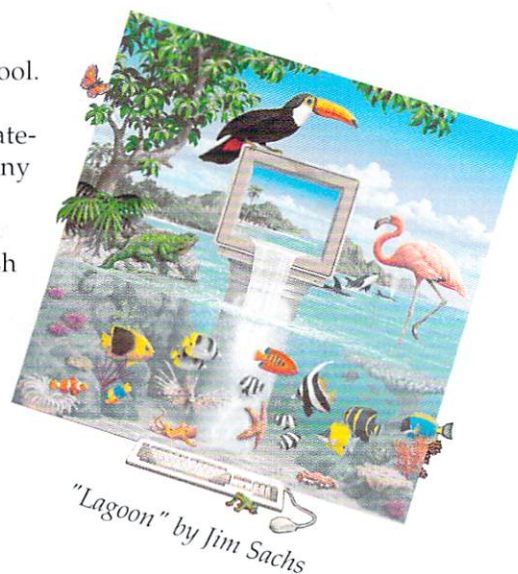
BRILLIANCE

2.0

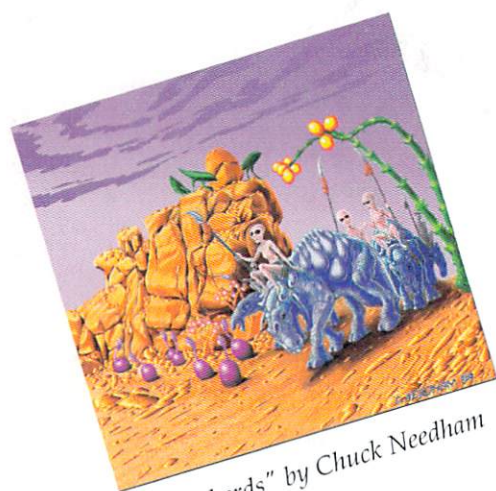
Toaster Users -
Add real-time 2D
animation to your videos

The FASTEST Paint and Animation for the Amiga

Brilliance 2.0 is the Amiga's most powerful paint program and a sophisticated 2D animation system combined into one breakthrough tool. The award-winning creators of DeluxePaint ST, Deluxe PhotoLab and DCTV Paint dedicated over three years to one goal... redefining the state-of-the-art. The result is simply the best graphics tool ever created for any computer. If you're still using DeluxePaint IV, get your hands on Brilliance 2.0. It's fast... *real fast*, and it's got higher resolution, better anim tools, dozens of swap screens*, true 24-bit editing, powerful brush manipulation, and multiple Undo/Redo levels (just for starters). Upgrade today to the ultimate paint and animation system.



"Lagoon" by Jim Sachs



"Shepherds" by Chuck Needham

New low price
\$99.95

- ▶ "If you can afford only one paint program for the Amiga, this is the one to buy" - AmigaWorld
- ▶ "If you're looking for the best AGA paint program on the Amiga, look no further" - Amazing Computing
- ▶ "The number one paint and animation package for the Amiga" - Amiga User International
- ▶ "Nothing out there can match it" - Amiga Computing
- ▶ "The best art package available for the Amiga" - C U Amiga
- ▶ "the Amiga's premiere paint package" - Amiga Shopper
- ▶ "Excellent!" - Amiga Format

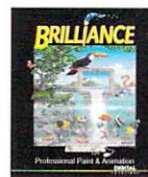
LIMITED TIME OFFER

Upgrade Any
Paint Program to
Brilliance 2.0

Upgrade only
\$49.95

Credit Card and COD orders, call today - have your old paint program's manual handy. Overnight delivery available.

Works in PAL, international friends call +1 (916) 344-4825. *Limited only by available RAM. Digital Creations is a trademark of Play Inc. Deluxe Paint is a trademark of Electronic Arts. Shipping and handling extra.



Call Today
800-645-1164

DIGITAL

C R E A T I O N S